

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

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

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

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

We also recognize the faculty members who served as mentors, coordinators, thesis readers, and reference writers, whose commitment and dedication enabled students' accomplishments. We thank them for helping to sustain a vibrant learning environment at Winthrop and for contributing to the development of the next generation of curious, engaged professionals. Lastly, we thank Samantha Kroft, administrative assistant to the Dean of University College, and Juniper Nagy, program assistant in the Undergraduate Research Office, for their irreplaceable contributions.

Nicholoas Grossoehme, Ph.D.

Director of Undergraduate Research

Leigh Poole, Ph.D.

Dean of University College

“People do not decide to become extraordinary. They decide to accomplish extraordinary things.”

- Sir Edmund Hillary, Explorer (1919-2008)

“When you spring to an idea, and decide it is truth, without evidence, you blind yourself to other possibilities.”

- Robin Hobb, Writer (1952-present)

For this book I wanted to show this idea of focusing and exploring, which looking back at previous SOURCE publications and work is what it's all about: students taking an opportunity to research, and explore, and make something that's important. And as people delve deeper into their work they begin to learn and grow. I reflected this idea in the sprouts that grow out of the book on the cover and from under the magnifying glasses on some of the spot illustrations. Along with the students' entries into this collection I also learned and grew throughout the process of working on this book. I've never worked on a layout as big or as complex as this before and I'm glad I got the chance to make this.

- Sierra Wheeler

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WINTHROP UNIVERSITY UNDERGRADUATE RESEARCH INITIATIVE

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

Undergraduate Research Advisory Committee:

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Biology

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Associate Dean & Interdisciplinary Studies

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Mike Sickels, Ph.D.

Sociology, Anthropology, and Criminology

Merry Sleigh, Ph.D.

Psychology

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Ephraim Sommers, Ph.D.

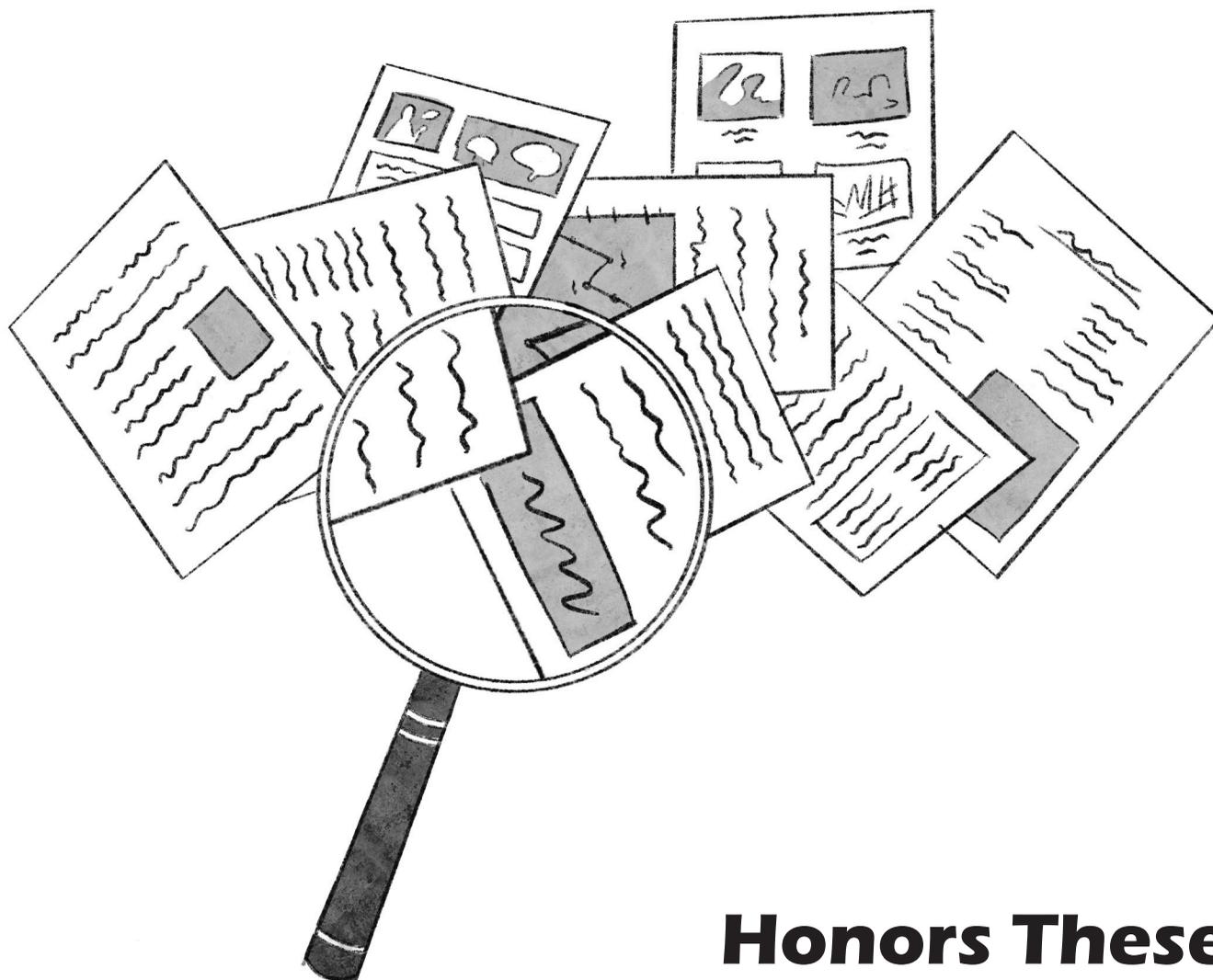
English

Bradley Tripp, Ph.D.

Sociology, Anthropology and Criminology

Scott Werts, Ph.D.

Environmental Sciences and Studies



Honors Theses

Honors Program

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

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 Winthrop created the Clustered Learning Units for Educational Success (C.L.U.E.S.) program in which new honors freshmen enrolled in a cluster of three honors classes. This program later became the Freshman Honors Program. Seeing the need for a more cohesive honors experience, President Anthony J. DiGiorgio led a 1997 initiative that combined the freshmen program with upper-class offerings.

Today, the Honors Program at Winthrop University enrolls approximately 320 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 additional committee members, requires Honors students to produce a project that evaluates knowledge, concepts, and methodology; examines major issues; integrates complex information; and develops and appropriately defend 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

Michael Lipscomb, Ph.D.

Director of the Honors Program

2021-2022 Honors Advisory Committee

Michael Lipscomb, Ph.D.

Chair, Honors Program Director

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Jo Koster, Ph.D.

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Leslie Bickford, Ph.D.

Director of the Office of Nationally Competitive Awards, ex officio

Leigh Poole, Ph.D.

Dean of University College, ex officio

Takita Sumter, Ph.D.

Dean of the College of Arts and Sciences, ex officio

Associations between Diet, Stress, and Gastrointestinal Health in Endurance Runners

Exercise has been associated with a more diverse and health-promoting gut microbiome. However, endurance exercise, specifically running, causes gastrointestinal distress in some individuals, which is thought to be related to decreased gut blood flow during exercise. A variety of factors modulate the presence of gastrointestinal distress during exercise, including exercise variables and dietary intake. Additionally, diet, exercise, and stress may alter the gut microbiome in ways that impact gut health and the gut's response to exercise. Therefore, this observational study aimed to assess the associations between dietary factors, gut microbiota composition, psychological stress, and GI symptoms in recreational endurance runners. Data collection included fecal and urine samples, 3-day food and exercise logs, and completion of an online survey. Microbial DNA from fecal samples was extracted and subsequently analyzed via 16S rRNA gene sequencing of the microbiome. Urine samples were analyzed to determine the cortisol level as a biochemical measure of stress. Food and exercise logs were input into NutriTiming software for analysis of overall dietary data. In addition, the survey assessed running habits, gastrointestinal health, and psychological stress. Twelve participants completed the study. Results revealed a trend of higher GI symptom scores during running in individuals who reported consuming food in 1-4 hours prior to a run (n=6), compared to individuals who did not (n=6; p=0.011). There were no significant associations between overall dietary intake and GI symptoms. Further research is needed to understand the causes of gastrointestinal symptoms during running, thus allowing for the development of improved nutritional recommendations.

Eden Crain

Honors Thesis Committee:
Jessie Hoffman, Ph.D., RD;
Ashley Licata, Ph.D., RD, CSSD;
Brian Collins, M.S.;
& Michael Lipscomb, Ph.D.

CAS – Human Nutrition

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

Adult's Perceptions and Lack of Knowledge of Different Learning Environments

Despite the changing landscape of education, misunderstandings and stereotypes may underlie parents' decision-making process. We examined adults' perceptions and knowledge of different learning environments. Adults (n=95) were randomly assigned to one of four experimental conditions describing a specific type of learning environment for a second-grade school child. The conditions were: structured public, unstructured/flexible public, structured homeschool, and unstructured/flexible homeschool. Participants predicted the child's likely outcome and provided information about their own educational experience and preferences, followed by a knowledge quiz about educational options. Adults perceived homeschool as encouraging creativity in children but providing a poor academic environment with little opportunity for social skill development. These perceptions may reflect stereotyped thinking rather than reality, as participants had limited factual knowledge about both public- and home- schools. Adults also ranked public school as the best option for all children. White adults and men felt the most positively about public school. Although adults believed that public school is the best option for most children, they disagreed that public school set them up for success.

Joslynn Luto

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

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Psychology

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

Yoga and Athletic Performance

Yoga practice connects the body and the mind and may lead to a variety of health benefits surrounding the physical body, breathing, and mental well-being. Certain types of yoga, such as Hatha yoga, yoga Nidra, Iyengar yoga, and Pranayama (breathing practice) may have specific health benefits related to athletics. A review of yoga literature suggests a connection between yoga practice and improved flexibility, strength, and balance, which may enhance athletic performance. Attention to breathing may improve oxygen consumption and improve athletic performance. Yoga may also help reduce anxiety and stress and improve sleep. Overall, yoga's ability to enhance the physical body, breathing techniques, and mental well-being may lead to enhanced athletic performance. Although some studies have explored yoga and its impact on athletes, this is still a relatively new area of study and warrants further investigation. Future research will need to increase sample sizes through randomized controlled studies in order to more directly assess the benefits of yoga practice on athletic performance.

Sarah Funderburg

Honors Thesis Committee:
Courtney Guenther, Ph.D.;
Kathryn Kohl, Ph.D.;
Sai Blair, Ph.D.;
& Michael Lipscomb, Ph.D.

Department of Biology
Research Symposium,
Winthrop University, April
2022

CAS – Biology

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

Social Surveillance State: Evaluating Human Rights Violations in China

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 negative effects on the ethnic Turkic Muslim and 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 government 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 Muslim Uyghurs. While many in the international community criticized 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 has facilitated by using the novel social credit system.

Sarah Hicks

Honors Thesis Committee:
Jennifer Disney, Ph.D.;
Brandon Ranallo-Benavidez, Ph.D.;
& Michael Lipscomb, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Political Science

(PLSC 490 –
Ranallo-Benavidez & Disney;
HONR 450H – Ranallo-Benavidez;
HONR 451H – Lipscomb)

The Evolution of Distribution in the Film Industry

Big-budget Hollywood movies that premiere at sold out theaters have long been a standard in the film industry. These “blockbusters” were invented by powerful film studios that had a tight grip on production, distribution, exhibition, and advertising. In recent years, with the growing popularity of content streaming services and the closing of movie theaters during the COVID-19 pandemic, this long-standing industry norm could be at risk for coming to an end. In this study, documentation of businesses’ revenues was gathered, which indicated that streaming services have been outperforming movie theaters in recent years. Public opinion surveys were observed, as well as an interview with a film producer, to scope out the reasons behind audience preferences towards seeing movies at theaters as opposed to streaming content at home. Based on this information, conclusions will be drawn on what the future of the film industry could look like.

Olivia Esselman

Honors Thesis Committee:
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& Michael Lipscomb, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Mass Communication

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

Stone Carving and its Relationship to Precious Metals

This project explores stone carving and its relationship to precious metals by examining techniques for attaching stone to silver without the use of a cold connection, a setting of some sort or a rivet. This study aims to reverse the normalized idea of how stone and metal are viewed in the jewelry world. The stone is normally seen as the added embellishment and the silver seen as the base mechanism of the piece, but here the relationship will be reversed. This study investigates how to cast with stone and gems included in an investment (a plaster mold for casting). Bridge construction, dentistry, and the history of stone carving also contribute to the research on the attachment of metal to stone. More specifically, I look at how bridge engineers create a lasting connection between a steel frame and its stone base. This work also takes account of how dentists attach a gold filling to a tooth. Building on that research, this project includes experiments in the metals studio at Winthrop University that relate to stone carving and attaching metal to stone. I experimented with the use of silver as a wire, sheet, and molten substance. There has also been an investigation into the properties of the stones used and discovering what kind of connection they create with metal. The final piece of this project is a work of art based on the researched methods for connecting metal to stone without the use of a cold connection.

Sky Gilbert

Honors Thesis Committee:
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& Michael Lipscomb, Ph.D.

Annual Showcase of
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(SOURCE), Winthrop
University, April 2022

CVPA – Fine Arts

(ARTS 455H – Fiala;
HONR 450H – Holiday;
HONR 451H – Lipscomb)

The Potential Pathway from Oppositional Defiant Disorder/Conduct Disorder to Antisocial Personality Disorder

There is plausible evidence and research to suggest that childhood diagnosis of oppositional defiant disorder (ODD) is a predictor for conduct disorder (CD) and can be used for a potential diagnosis of antisocial personality disorder (ASPD). The purpose of this study is to explore the possible relationships of the diagnoses of ODD and CD to the diagnosis of ASPD. This research will provide a background understanding of all the disorders; catalog their similar symptoms, treatments, and possible origins to establish a connection between the disorders proposing ODD and CD are possible predictors of ASPD. Data used within the study include correlational data of childhood diagnoses of ODD, CD, and ADHD and the measurements of present antisocial behavioral patterns from ODD to CD that can match to ASPD diagnostic criteria. Results of the study find overlap of ODD and CD diagnoses in childhood as well as comorbidity with attention-deficit hyperactivity disorder (ADHD), which can present antisocial behaviors that correlate with ASPD diagnosis. The research also reveals a strong correlation in ODD and CD serving as possible antecedents of adult diagnoses of mental disorders. Overall, the research provides a deeper look at the overlapping diagnoses and the duration of symptoms such as defiance, aggression, and inability to follow social norms in childhood to adulthood and how the symptoms of ODD and CD are likely a precursor to emerging symptoms present in ASPD.

Kayce Champion

Honors Thesis Committee:
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Merry Sleigh, Ph.D.;
Sarah Reiland, Ph.D.;
& Michael Lipscomb, Ph.D.

CAS – Psychology

(PSYC 302 – Ritzer;
HONR 450H – Ritzer;
HONR 451H – Lipscomb)

Why is it Difficult for Grassroots NPOs to Receive Funding?

Nonprofit organizations (NPOs) are formed to improve or maintain conditions in society by providing support and resources for the greater community. NPOs can tackle a wide variety of issues such as poverty, environmental impact on a population, or health disparities. Nonprofits have played an increasing role in advocating for disadvantaged people. But in order for an NPO to survive, they need substantial funding. Though many high-profile international nonprofit organizations are able to thrive, unfortunately many local NPOs will struggle to survive. This leads to the question, why is it so difficult for local grassroots NPOs to raise funds? Is there a reason why some local NPOs have greater fundraising capacity? This paper examines these concerns through case studies of local nonprofits in Charlotte and surrounding areas. Through the comparison of case studies of local nonprofits, this study hypothesizes and finds initial supporting evidence that religious-backed organizations are better able to obtain necessary funds compared to secular organizations. This study also explores how race challenges the ability of NPOs to raise funds.

Angel Thomas

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

CAS – Political Science

(PLSC 490H – Belk;
HONR 451H – Lipscomb)

Retrospection and Reconciliation: Exploring the Complex Mother-Daughter Relationships in the Short Stories of Alice Munro and Lucia Berli

In the short stories of Alice Munro and Lucia Berlin, the literary technique of retrospection is extensively utilized by both authors to explore the complexity of the mother-daughter relationship. Munro and Berlin masterfully weave together the past with the present through the use of retrospection, which enables their female protagonists to explore the strained relationships they have with their mothers. Ideas from Simone de Beauvoir's *The Second Sex* and Adrienne Rich's *Of Woman Born: Motherhood as Experience and Institution* are applied to my evaluation of the mother-daughter relationships at the center of the selected short stories. Concepts from these two feminist theorists that are central to my analysis include Beauvoir's theory of how mothers seek a "double" in their daughters, and Rich's examination of the concept of "matrophobia" (the fear of becoming one's mother) and the young woman's quest for her own identity—a journey that requires separation from the mother figure. The selected short stories are from Munro's collections *Dance of the Happy Shades* and *Runaway*, and Berlin's collection *A Manual for Cleaning Women*. In the short stories being compared and analyzed, the protagonists are estranged from their mothers and are seeking to understand their mothers later in life, often when the mother is dead. Through the retrospective narrative employed in these short stories, the daughters begin to explore their strained relationship with their mothers and begin the process of reconciling themselves to their mothers' past mistakes and their own mistakes as well.

Julia Breitreutz

Honors Thesis Committee:
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Jo Koster, Ph.D.;
& Michael Lipscomb, Ph.D.

Annual Showcase of
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(SOURCE), Winthrop
University, April 2022

CAS – English

(ENGL 494H – Koster;
ENGL 471H – Brownson;
HONR 451H – Lipscomb)

The Dispute in the South China Sea and a Possible Resolution

This paper asks how China's increasing insistence on its claims in the South China Sea has impacted their relations with their neighboring southeast Asian nations with competing claims and with the United States and its allies. It also takes stock of past suggested solutions to the South China Sea dispute in the form of the Association of Southeast Asian Nations (ASEAN) intervention, maintenance of the status quo, and United Nations intervention while analyzing past studies on the South China Sea dispute and considering statements of relevant government actors. Without proper resolution, the disputes about these territorial claims, escalation will likely continue. This paper suggests that the best way to resolve the South China Sea dispute is for the two superpowers of China and the United States to have formalized negotiations on contested issues in the South China Sea while side-stepping the issue of territorial claims between the Southeast Asian nations. This resolution could occur through bilateral negotiations between China and the United States by focusing on joint development in the region in relation to the economic resources in the South China Sea which in turn could be a starting place for further dispute resolution in the region.

Christopher Brokaw

Honors Thesis Committee:
Adolphus Belk, Ph.D.;
Hye-Sung Kim, Ph.D.;
Chris Van Aller, Ph.D.;
& Michael Lipscomb, Ph.D.

CAS – Political Science

(PLSC 490H – Belk;
HONR 451H – Lipscomb)

The Effects of Multiobjective Task Performance on Heterogenous and Homogenous Multiagent Learning

Cooperative team learning can be categorized as heterogeneous, where the agents learn specialized behaviors, or homogeneous, where agents learn the same behavior. Prior work has compared these two types of learning with varying degrees of success in each case. What we lack, however, is an understanding of when heterogeneity should be used rather than homogeneous methods. The goal of this work is to understand how the circumstances of a problem affect the success of a team. Specifically, we explore how conflicting objectives affect the performance of heterogeneous and homogeneous teams. We examine this question by presenting multiple simulated scenarios, each with varying degrees of conflict in the team's objectives and compare the performance of homogeneous and heterogeneous teams of agents.

Rachel Moan

Honors Thesis Committee:
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Kristen Abernathy, Ph.D.;
Trent Kull, Ph.D.;
& Michael Lipscomb, Ph.D.

Annual Showcase of
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and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CBA – Computer Science &
Quantitative Methods

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

Life is Strange 2: Dignity vs. Safety in Trump's America

This paper examines how video games are unique in their ability to educate the player. By placing players in a familiar social context but in an identity they would not normally associate with, video games can present players with ethical and moral conundrums, induce critical thinking, and allow them to strategize and make choices in order to reach goals in political and moral contexts. Video games are one of the most immersive forms of media, placing the player as the principal actor and decision-maker, and can therefore draw out emotional and physical reactions that have the potential to influence and alter their ways of thinking. To demonstrate this potential, this paper critically examines the video game *Life is Strange 2*, which follows two first-generation Mexican-American brothers as they travel through the U.S. and attempt to cross the border into Mexico after their father is killed in a police shooting. On their journey, the brothers are subject to racism and violence at the hands of white America but also manage to discover humanity in the social outcasts and allies they encounter. I argue that the story functions as a sociopolitical criticism of the Trump era, without mentioning our former president's name, that explores the dynamics of marginalized racial, ethnic, gender, and sexual identities in a society built upon power structures that perpetuate violence against them. Additionally, I explore the juxtaposition the game illustrates between preserving one's dignity and maintaining one's safety and security, a theme that is familiar to oppressed groups living in American society. Finally, I examine the critical reception, and backlash, to *Life is Strange 2* in a gaming industry that remains dominated by white cisgender men who serve as both the content creators and consumers.

Elijah Lyons

Honors Thesis Committee:
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Adolphus Belk, Ph.D.;
Jo Koster, Ph.D.;
& Devon Ralston, Ph.D.

CAS – Political Science

(HONR 490H – Belk;
HONR 451H – Lipscomb)

The Response of Chick Retinal Ganglion Cells to Semaphorin 3A: potential Semaphorin 3A receptors and effects of BDNF and CNTF

In the developing nervous system, axons are guided towards their targets by guidance cues. The guidance molecule Semaphorin 3A is a repulsive axon guidance molecule for many axons. Previously, it was found that Semaphorin 3A didn't cause collapse of chick retinal ganglion cell (RGC) growth cones. Contrary to original findings, we found the addition of Semaphorin 3A induced the collapse of RGC growth cones in a dose-dependent manner. One hypothesis is that the difference in results may be due to the presence of neurotrophins, which in some axons increases the sensitivity of the growth cones to semaphorin. We examined the response of chick RGC growth cones to Semaphorin 3A to see if they can be modulated by exposure to neurotrophins BDNF and CNTF. RGCs cultured with BDNF and CNTF did not have increased growth cone collapse activity compared to the control. Thus, chick RGC growth cones collapse when treated with Semaphorin 3A and BDNF and CNTF do not factor into that collapse. Since RGCs are responding to Semaphorin 3A, then Semaphorin 3A receptor(s) have to be expressed. Semaphorin 3A has multiple known receptors and accessory receptors. However, not much is known about the Semaphorin 3A receptors expressed during chick retinal development. Preliminary results indicate that Neuropilin 2, Plexin A1, Plexin A2, and Plexin B2 are expressed throughout chick retinal development while Neuropilin 1, Plexin A4, L1 CAM, and CHL1 expression varies depending on developmental stage. These findings indicate that Semaphorin 3A may be a repulsive guidance molecule for RGCs potentially acting through multiple receptors.

Eva Hermanova

Honors Thesis Committee:
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Jason Hurlbert, Ph.D.;
Kathryn Kohl, Ph.D.;
& Michael Lipscomb, Ph.D.

Summer Undergraduate
Research Experience
Symposium (SURE),
Winthrop University, Rock
Hill, SC, October 2021

Supported by SC-INBRE
grant from the National
Institute for General
Medical Sciences (8 P20
GM103499)

CAS – Biology

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

Investigating the Tumor Suppressive Role of RYBP in U-87 Glioblastoma Cells

Glioblastoma multiforme (GBM) is the most common and aggressive form of brain cancer. GBM tumors extend threadlike tendrils throughout the brain, which complicates or even eliminates the option of surgical resection. Even with standard chemotherapy and radiation, the median survival rate in adults is only around 14 months. Moreover, GBM displays increased intra- and inter-tumor heterogeneity, which leads to therapeutic resistance and recurrent disease. Thus, there is an urgent need to understand targetable molecular networks that drive GBM progression. Evidence suggests that RING1- and YY1-Binding Protein (RYBP) serves as a tumor suppressor in multiple cancers. RYBP has been recognized as a tumor suppressor in a series of cancers, and in GBM, RYBP expression levels are reduced and inversely correlate with patient prognosis. However, its molecular role in GBM is not well understood. Therefore, we hypothesized that RYBP exerts a tumor suppressive effect in GBM. To test the tumor suppressive effects of RYBP on GBM cells, we generated RYBP-expressing plasmids and co-transfected them into U-87 cells alongside a GFP-expressing reporter plasmid. After 24 hours, we isolated total protein from transfected cells and verified RYBP expression by Western blot. Our data suggest that none of our plasmid clones successfully forced RYBP expression in U-87 cells, so we were unable to measure RYBP's effects on GBM cell proliferation. In the future, we will need to isolate plasmids from different bacterial clones and sequence them to ensure they do not contain mutations that may inhibit transient manipulation of RYBP expression in GBM cells.

Catherine Moorhouse

Honors Thesis Committee:
Dan Stovall, Ph.D.,
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Sal Blair, Ph.D.,
& Michael Lipscomb, Ph.D.

Summer Undergraduate
Research Experience Sym-
posium (SURE), Winthrop
University, Rock Hill, SC,
October 2021 & Annual
Showcase of Undergradu-
ate Research and Creative
Endeavors (SOURCE),
Winthrop University, April
2022

Supported by Research
Council Grant 20014

CAS – Biology

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

Assessment of well-being using Fitbit technology in college students, faculty, and staff performing breathing meditation

Stress is a common occurrence among higher education populations, and recently, there has been an unprecedented increase in stress and anxiety stemming from the COVID-19 pandemic. Mindfulness can help reduce anxiety and stress and may be a beneficial resource for students, faculty, and staff. Additionally, breathing meditation and physical activity may both increase the ability to cope with a range of different mental health stressors. Therefore, our study aimed to better understand the intersection of mindfulness, physical activity, and well-being within higher education populations amidst the COVID-19 pandemic. Participants included college students, faculty, and staff (n = 34). Participants' physical activity levels, heart rate, and sleep were monitored for two weeks using Fitbit, a fitness tracking device. Participants also completed the Hospital Anxiety and Depression Scale (HADS), Mental Health Continuum Short-Form (MHC-SF), Penn State Worry Questionnaire (PSWQ), and the Mindful Attention Awareness Scale (MAAS) at baseline and immediately after completing the study. Comparisons were made between participants who completed breathing meditation exercises for five minutes a day for one week using the Relax app on the Fitbit (n=17) and a control group, who wore the Fitbit, but did not perform any breathing meditation exercises (n=17). Our results indicated that participants in the treatment group who completed breathing meditation had significantly decreased anxiety scores compared to the control group; however, mindfulness scores were not significantly different for either group. Overall, the evidence suggests that engaging in brief breathing meditation may improve overall well-being among college students, faculty, and staff.

Lily Garcia

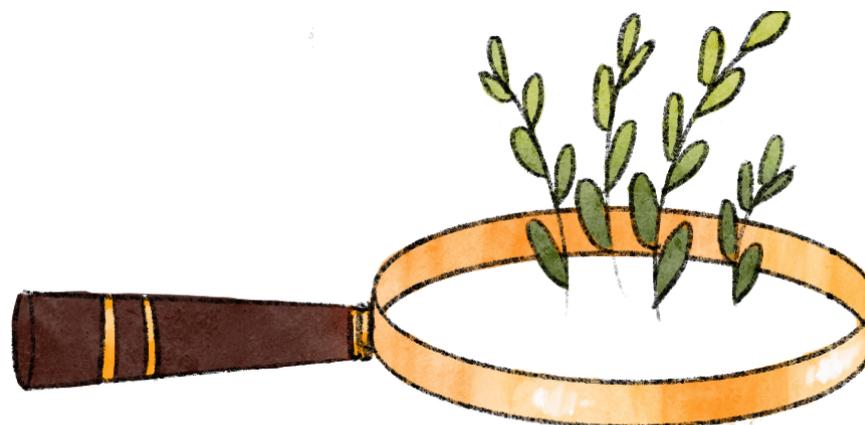
Honors Thesis Committee:
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David Schary, Ph.D.;
& Michael Lipscomb, Ph.D.

Summer Undergraduate
Research Experience
Symposium (SURE),
Winthrop University, Rock
Hill, SC, October 2021;
& Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

Supported by SC-INBRE
grant from the National
Institute for General
Medical Sciences (8 P20
GM103499), National
Institute of General Medical
Sciences, National Institutes
of Health, January 2021

CAS – Biology

(HONR 451H – Lipscomb)



Utilizing Isothermal Calorimetry to Assess Troponin Complex Stability

The regulation of muscle contraction is contingent on Ca^{2+} binding to the troponin (Tpn) complex, which is composed of TpnC, TpnI, and TpnT. Each protein serves a distinct role in the regulation strategy: TpnT makes the primary interaction with tropomyosin, TpnI is responsible for the inhibitory interaction that prevents muscle contraction, and TpnC responds to cellular Ca^{2+} signals, triggering a structural change that abolishes the inhibitory interaction between TpnI and the muscle fiber. The toxic metal, cadmium, has been implicated in impaired cardiac function and it has been proposed by our research team that this may be due to impacting Ca^{2+} signals; indeed, previous research shows a strong interaction between cadmium and TnC. The goal of this project is to further study the thermodynamic and structural impacts of cadmium binding to the troponin complex. The focus of this project is to design and perform isothermal titration calorimetry (ITC) experiments to establish baseline thermodynamic data for the impact of cadmium binding on the formation of the Tpn complex. Our strategy involved cloning a protease cleavable maltose binding protein affinity tag onto each protein. Once cloned, the construct was over-expressed in *E. coli* and purified using modern chromatography techniques. Protease removal of the affinity tag on TpnC presented unexpected complications, so an alternate strategy involving a different affinity tag, hexahistidine, was successfully adopted. Future goals for this project are to design and carry out ITC experiments.

Samantha Fritsch

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Summer Undergraduate
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Hill, SC, October 2021 &
Annual Showcase of
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(SOURCE), Winthrop
University, April 2022

Supported by SC-INBRE
grant from the National
Institute for General Medical
Sciences (8 P20 GM103499)

CAS – Chemistry, Physics &
Geology

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

The Storm

How do I recreate the feeling of a storm in a way that the audience will be able to connect the experience to their own personal storms? My project concept is an audio-visual-physical installation of a storm. I will be combining various forms of storytelling, specifically sound and video, to communicate how it feels to be very suddenly and violently confronted with one's own mortality and fears. Instead of telling the story of the storm itself, I am using its structure to communicate a tonal journey. Despite the negative emotions that one can experience during and after a storm, I intend to make an experience that is ultimately cathartic. It is important to me that my audience leaves the installation knowing that any storm they are going through is temporary. The installation will consist of a score made up of collected sounds and videos projected on the walls. It is my goal that by drawing from my own personal experience with a natural disaster and making that experience accessible to other students, I can ultimately prompt empathetic connection and discussion.

Jordan Crosby

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& Ronald Parks, Ph.D.

Annual Showcase of
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(SOURCE), Winthrop
University, April 2022

CVPA – Design

(VCOM 486 &
VCOM 487H – Tselentis)

The Relationship Between Food Insecurity, Disordered Eating Behaviors, and Eating Disorders

College students (young adults aged 18-24) are the most susceptible population to fall in the marginal to low food security range due to a lack of accessible resources. This issue has become more pressing since the coronavirus pandemic has displaced many college students from their normal living and employment arrangements. The financial burden of having to pay for school (classes, room and board or rent, textbooks, supplies, etc.) and food forces many students to decide which is more important. Although many colleges have food pantries that are available for students to grab what they need, an alarming number of students still report that they are food insecure. The added stress of having to micromanage funds can seriously damage students' relationships with food, leading to the development or resurfacing of disordered eating behaviors (DEBs) or clinically diagnosed eating disorders (EDs). Thus, this study explores the relationship between food insecurity, disordered eating behaviors, and eating disorders in college students. A Qualtrics survey including demographics and screening questions for level of food security, DEBs, and EDs will be sent to the student body using the Winthrop Daily Announcements. We hypothesize that students who report some level of food insecurity are more likely to report practicing some DEBs or having a diagnosis of an ED than students who report being food secure. More research is needed about this relationship so that colleges can develop resources that are better at recognizing DEBs and aiding students who are at risk of becoming food insecure.

Yinka Pelumi

Honors Thesis Committee:
Ashley Licata, Ph.D., RD, CSSD;
Jessie Hoffman, Ph.D., RD;
Karin Evans, M.A., RD, CHES;
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Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Human Nutrition

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

Examining Adversity and Protective Factors in College Students' Lives

Adverse childhood experiences (ACEs) are potentially traumatic events that an individual experiences before the age of 18. These experiences can include being abused or neglected, experiencing or witnessing violence, growing up in a household with a person who has substance abuse or mental health problems, or living in a household with divorced parents. Adverse childhood experiences can significantly impact a person mentally, physically, emotionally, and developmentally. However, research has shown that protective factors at the individual, familial, or community level can contribute to resilience, or the ability to handle and adapt to adverse and stressful events. Examples of protective factors include intrinsic motivation, positive and present family members, and community support. Protective factors can outweigh or create buffers against the adversities that individuals have faced. This cross-sectional, exploratory study examines the types of adversity and protective factors traditional-aged college students report in their lives. Survey data collected with undergraduate students from a southeastern university indicate nuanced results. Findings regarding risk and protective factors as well as perceptions of academic success and college connectedness have implications for high school and college support services and programming.

Kayla Thomas

Honors Thesis Committee:
Kori Bloomquist, M.S.W., Ph.D.;
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Sarah Hopkins, M.S.W.,
& Monique
Constance-Huggins, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Social Work

(HONR 451H – Bloomquist;
HONR 451H – Lipscomb)

Women of Color and Faculty Life

This study explores the experiences of women of color in a predominantly white university setting. I examine how discrimination and relationships with colleagues both within and across departments affects the work life of women of color (WOC) faculty. The research is based on 14 semi-structured interviews with women of color faculty at a southern university. Of the participants, 9 identified as Black or African American, 4 identified as Asian-American immigrants, and one identified as a Black immigrant. This research examines the commonalities and variations of the experiences of these WOC faculty. The findings suggest that (1) women of different racial/ethnic backgrounds have distinctive faculty experiences and most have experienced discrimination throughout their academic career; (2) WOC faculty perceive harsher judgement in areas such as tenure and promotion or managing the classroom; however, immigrant WOC faculty tend to perceive these kinds of discrimination being less blatant than Black WOC faculty; (3) experiences of isolation are common, and establishing relationships with colleagues is particularly challenging for WOC faculty both within and across departments. Many of these women actively seek to establish relationships with other women of color and develop a sense of comradery. These relationships may be important for ensuring the recruitment and retention of WOC faculty.

Savannah Stinson

Honors Thesis Committee:
Michael Lipscomb, Ph.D.;
Mike Sickels, Ph.D.;
Jeannie Haubert, Ph.D.;
& Cheryl Fortner-Wood, Ph.D.

Southeastern Association of Educational Opportunities Programs Personnel (SAEOPP); McNair/Student Support Services (SSS) Regional McNair Scholars Conference, Virtual, June 2021; Winthrop McNair Research Symposium, Winthrop University, Rock Hill, SC, June 2021; Summer Undergraduate Research Experience Symposium (SURE), Winthrop University, Rock Hill, SC, October 2021; & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by Ronald E. McNair Research Program

CAS – Sociology, Criminology, & Anthropology

(HONR 450H – Sickels; HONR 451H – Lipscomb; MCNR 302 – Fortner-Wood)



Are WIDA ACCESS Test Results Appropriately Reflecting English Learners' Language Skills According to ESOL Teachers' Experiences?

This study uses qualitative research methods to gain insight into the authenticity of the widely used English as a second language proficiency assessment formerly referred to as World-Class Instructional Design and Assessment (WIDA). Language performance data is collected and analyzed annually from nonnative English speaking student populations within the public school districts of three neighboring school districts in South Carolina. WIDA ACCESS testing evaluates English language development by measuring academic and social language skills within the four language domains: reading, writing, listening, and speaking. English learners (ELs) without classified learning or physical disabilities in grades 1-12 participate in the Assessing Comprehension and Communication of English State-to-State (ACCESS) strand of WIDA testing. Teachers administer all four language domain assessments online. Results are used to place students into proficiency categories ranging from entering (a new EL) to bridging (a near-fluent EL). Focus-group interviews were conducted with English as a Second or Other Language (ESOL) instructors at the elementary level within the aforementioned school districts. The interview questions allow the ESOL teachers to share their experiences with ELs' classroom performances in the four domains compared to their measured performance through the online WIDA assessments.

Emily Patterson

Honors Thesis Committee:
Elke Schneider, Ph.D.;
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Kimberly Oxley, M.A.;
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Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Education Core

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

Investigation of Protein-Protein Interactions of the Troponin Complex in Response to Ca^{2+} and Cd^{2+} binding

Troponin is a protein complex present in the thin filaments of all muscles. Its primary role is to facilitate muscle contraction in response to Ca^{2+} signals that originate from nerve impulses. It is composed of three distinct proteins: troponin I (TnI), which inhibits actin-myosin interaction; troponin T (TnT), which provides the primary interaction with tropomyosin; and troponin C (TnC), which binds Ca^{2+} ions, which is the crucial step of the contracting mechanism. Recent evidence suggests that the toxic metal cadmium, Cd^{2+} , can compete calcium binding to TnC. The goal of this project is to investigate the impact of Cd^{2+} -binding to TnC on the formation and stability of the troponin complex. Surface Plasmon Resonance (SPR) will be used to study the protein-protein interactions between troponin complex proteins and characterize how these interactions respond in the presence of the two metals. Previously, our research team has designed purification strategies for each of the troponin proteins; however, solubility issues were encountered during the final step of TnI and TnT purification. Briefly, the purification system was designed to incorporate a protease cleavable MBP fusion protein to the N-terminus of TnI or TnT. Upon proteolysis, it was found that these proteins are not soluble in the absence of the MBP tag. Presently, the approach has been modified to incorporate a second tag, monomeric streptavidin (mSA), between the MBP and TnI/T. We hypothesize that this tag will increase the solubility of the proteins while providing an ideal anchor for SPR chip attachment.

Anh Nguyen

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Cliff Calloway, Ph.D.;
Timea Fernandez, Ph.D.;
& Michael Lipscomb, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM103499)

CAS – Chemistry, Physics & Geology

(HONRS 450H – Grosseohme;
HONR 451H – Lipscomb)

My Music Database

This project focuses on creating an app, My Music Database, which allows users to store information about their music collection, including the genre, artist, release year, and a streaming link of a release. A primary innovation allows users a variety of ways to view their collection in-app in order to facilitate a wide range of user preferences. For example, Spotify does not currently allow users to sort their saved albums by genre. My Music Database not only allows users to sort by genre, but it will also let them specify the genre for themselves. Music apps often do not allow users to view saved albums from a specific artist while sorting chronologically, but this app makes that possible. It also allows users to link to an album's streaming link or make a note that they own a physical copy. My Music Database is meant for people who are frustrated by the organizational schemes of streaming platforms, for people who listen to music across several mediums, or for people who want to make a record of their physical collections. This app will be made publicly available for Android devices.

Andrew Blondo

Honors Thesis Committee:
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Richard Ilson, Ph.D.;
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& Michael Lipscomb, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CBA – Computer Science &
Quantitative Methods

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

Developing and Optimizing Recellularization of Porcine Internal Thoracic Artery Scaffolds

Cardiovascular disease remains a global challenge, even for most developed nations. An important part of meeting this challenge includes the search for graft alternatives for use in bypass procedures on candidate patients. Tissue-engineered blood vessels show promise in this regard since they eliminate the need for patient-derived grafts and reduce the risk of re-intervention. In our search for a graft source, we chose porcine internal thoracic artery (PITA) scaffolds because they are the most biologically and mechanically similar to patient small-diameter vasculature. Decellularization of PITAs via detergents and DNase treatment generates non-immunogenic acellular scaffolds. In this study, we examined the effects of varying detergent concentrations used in decellularization on scaffold ultrastructure and cell seeding efficiency using endothelial cells. Additionally, the use of adipose derived stem cells was introduced as a candidate for scaffold re-cellularization. Stem cells grown in the presence of transformation growth factor beta 1 were also analyzed for their potential use as a population of pre-differentiated smooth muscle cells during scaffold re-cellularization. We observed that higher detergent concentration did not have a significant effect of PITA porosity, but that it did affect re-cellularization. We also showed that aortic endothelial cells can be cultured on PITA scaffolds when the detergent is fully cleared from the scaffolds. Gene expression analysis revealed that stem cells upregulated expression of genes associated with smooth muscle cells in control conditions. These results necessitate further investigation and explanation to optimize a protocol for inducing smooth muscle cell differentiation.

Carlos Escoto-Diaz

Honors Thesis Committee:
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& Michael Lipscomb, Ph.D.

The Annual Biomedical
Research Conference
for Minority Students
(ABRCMS), Virtual,
November 2021; Annual
Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

Supported by SC EPSCoR:
MADE in SC, NSF
#1655740, IDeA Stimulus
Research Program

CAS – Biology

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

Age Discrimination in The Workplace: What Can Be Done About It?

In the United States, age discrimination in the workplace is still a significant problem. Though the Age Discrimination Act of 1967 protects employees 40 and older from explicit age discrimination, many older individuals still face implicit bias when trying to find a job. My research explores what needs to be done to effectively combat age discrimination. To do this, an understanding of the roots of ageism in society needs to be developed. Based on a survey of scholarly articles and statistical studies involving age discrimination, we find that age discrimination practices are largely rooted in individual fears of things such as dependance and disability. Therefore, in order to combat age discrimination in the workplace, society will need to eliminate negative stereotypes regarding the elderly through mass education on the wide-reaching scope of ageism and its negative effects.

Joseph Jones

Honors Thesis Committee:
Melissa Carsten, Ph.D.;
Tracy Griggs, Ph.D.;
Kent Miller, Ph.D.;
& Michael Lipscomb, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CBA – Management &
Marketing

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

The Bridge Between Painting and Ceramics

Only a very small minority of artists combine painting and ceramics. As a result, little has been done exploring the relationship between the two as companion mediums. My work will focus on studio work, producing artwork that showcases ceramics, painting, and places, such as accordion book paintings, where they intersect. Though some art forms, like painted china and decorated tiles, are clear intersections of these mediums, my work will also explore less obvious areas where the two mediums work together. Painting lends its hand to many areas of ceramics, from glaze to underglaze, but the ways that ceramics can support painting is far less clear, and that support will be a major focus of my research. Can ceramics support painting as more than the subject of a still life? That is the question I hope to answer over the course of my studies and studio work. I situate my studio work and artifacts in its art-history context, particularly in relation to Impressionist painting and important eras in the history of ceramics, such as the Roman Empire, China's Wanli period, and 16th Century Japan. My artwork and the accompanying essay about its historical antecedents are combined in a single installation.

India Walker

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Annual Showcase of
Undergraduate Research
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(SOURCE), Winthrop
University, April 2022

CVPA – Fine Arts

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

Put Together

My Culminating Honors project is rooted in two things I love and adore: film and dance. To execute both concepts together I have created a movement-based short film titled Put Together. The film follows a woman as she dances through the beginning and end of a relationship. This film is the story of a woman's journey through love. Using movement parallels, this film shows how the body is influenced by different emotions. The dancer performs the same movements throughout the piece, but her emotional state influences how she moves. The purpose is to discover the light airy feelings of joy and the heavy weak feelings of loss, and how they affect the body. I want viewers to be entertained while also finding ways to relate to the film, whether that be emotional or physical.

Ashley Brown

Honors Thesis Committee:
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& Chris Brown, M.F.A.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CVPA – Theatre & Dance

(FILM 420 – Nortz)

Conversations with My Dog

In this short film, I explore the relationship a young man has with his dog through a series of one-sided humorous conversations as he grapples with growing up, going away to college, and coping with grief. Through this film, I aim to develop a broader message about how important animals are in our lives as both companions and family members, as well as how frequently we fail to recognize how valuable they really are until after we lose them. I have a deeply personal connection to the film's subject matter because it is inspired by actual 'discussions' I have had with my own pets over the years, earnestly engaging them in conversation even though they cannot respond to me. This film's goal is to make audience members think about how their own pets have been there for all of the most significant moments in their lives. I want people to see themselves in the simple, sincere dialogue of the film and feel invested in the life of the main character based on an understanding of how much animals can mean to us. In order to achieve this, I focus the film on just a few key, relatable, poignant moments and utilize intimate close-up camera work to convey a sense of emotional connection. The film stays firmly grounded in reality with straightforward, easy-to-follow cinematography and even lighting that helps the audience stay focused on the heart of the story.

Cameron Muccio

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Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CVPA – Theatre & Dance

(FILM 420 – Nortz;
HONR 451H – Lipscomb)

“Realism Is Nonsense”: An Experimental Writer’s Guide to Fiction

Following the realist movement of the nineteenth century, fiction writers and literary critics have often evaluated a story's artistic worth according to the canonical parameters of realism. Such a criterion asserts that literary fiction aspires to imitate absolute reality for the suspension of a reader's disbelief. Experimental authors such as George Saunders, Gabriel García Márquez, and Kelly Link, however, successfully defy conventional realism and embrace absurdity in their fiction. In this thesis, I will assess the role of realism in fiction by examining contemporary defenses of fictional realism and analyzing excerpts of experimental short stories. The metacritical purpose of this analysis is thus threefold: first, to qualify definitions of fictional realism; second, to augment Saunders's theory that “realism is nonsense”; and third, to argue that even realistic fiction entails an element of artificiality and cannot unequivocally encompass the human condition. While fiction writers must suspend readers' disbelief via a recourse to verisimilitude, a mimetic reconstruction of our world is not essential in crafting meaningful narratives pertinent to the human experience.

Shyanne Hamrick

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Annual Showcase of
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(SOURCE), Winthrop
University, April 2022

CAS – English

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

The Heterosexist History of the Foster Care System: Perceptions that Shape Foster and Adoptive Parenting in America

Throughout the history of the foster care system in America, individuals within the LGBTQIA+ community have experienced significant legal and social obstructions to fostering and adopting youth. Although the United States' foster care system is crowded with youth in desperate need of homes on a national scale, many members of the LGBTQIA+ community continue to experience difficulties in the process of becoming parents through fostering or adoption. Child welfare professionals who work alongside youth and their families are instrumental in determining the long-term well-being outcomes of each child and professionals' perceptions can influence practice and permanency on behalf vulnerable youth. This study aims to assess the attitudes of child welfare professionals regarding fostering and adoption by individuals in the LGBTQIA+ community through in-depth, qualitative interviews. Data are analyzed for salient themes. Findings from this study have implications for permanency practice and the overall well-being of children, adolescents, and families with foster and adoption needs.

Hannah Savage

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& Michael Lipscomb, Ph.D.

Annual Showcase of
Undergraduate Research
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(SOURCE), Winthrop
University, April 2022

CAS – Social Work

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

Attention Deficit Hyperactivity Disorder Affects the Sexes in Varying Ways

There has been wide research on Attention Deficit Hyperactivity Disorder (ADHD), which is a neurodevelopmental disorder that has a variety of effects. The vast majority of this research has been on men. Women are more likely to outwardly present the symptoms of the disorder as inattentive rather than as hyperactivity, which is more likely in males. This pattern, along with societal biases and misdiagnosis, means that females with ADHD are underdiagnosed. Through a comparison of the symptoms and presentation across the sexes, the path to diagnosis, and how the disorder is treated in regards to the sex of the affected individual, we can highlight the differences gender plays in the overall course of ADHD treatment and diagnosis. Understanding these factors can help the medical community and society at large better respond to these differences to better provide for individuals with ADHD.

Ellery McNeill

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Larry Fisher, Ph.D.;
Richard Cox, Ph.D.;
& Michael Lipscomb, Ph.D.

Annual Showcase of
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and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Biology

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

Fountain of Mirrors

Fountain of Mirrors is an installation inspired by the motif of women and water. My artwork revolves around self-reflection and the reflection of others. This is because I'm always searching for a deeper understanding of myself and the people around me. Mirrors are an important symbol in my work because I see water as a natural mirror that we can see ourselves in. In this installation, not only am I reflecting on the women around me but also literature and traditional art. For many generations, artists and writers have connected women and water. Creative individuals have used water to symbolize emotions, femininity, and identity. For my thesis, I'm exploring the symbolic meaning of water, the women in my family, and myself. This message will be conveyed through an installation of coins with portraits of women covered in a projection of water and audio of my sister, aunt, nieces, and grandmother stating their wishes and why. The space will also have artwork inspired by Yoruba deities Yemaya and Oshun and the Virtue Temperance.

Trenedy Hayden

Honors Thesis Committee:
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Shaun Cassidy, M.V.A.;
Stephanie Sutton, M.F.A.;
& Michael Lipscomb, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CVPA – Fine Arts

(ARTS 498H – O'Steen;
HONR 451H – Lipscomb)

Relationship Between the Development of Eating Disorders and Childhood Trauma in Family Dynamics

Decades of research suggest there is a relationship between early trauma and subsequent eating disorders. This paper will serve as a systematic research review to examine the impact of trauma in family relationships on the development of eating disorders later in life. This research review will consist of past relevant research of eating disorders and their connection to family trauma. Eating disorders are serious and sometimes fatal mental disorders in which a person may experience disturbing eating behaviors. As such, a person with an eating disorder may also experience disturbances in thought processes, emotions, and body image. This research review will focus on if and how childhood trauma, specifically when the trauma stems from one's relationship to one's parents or parental figures, will play a role in the development of an eating disorder. Understanding the complex relationship between experiencing trauma and developing eating disorders is an important step in supporting those struggling with an eating disorder to develop effective coping mechanisms and confronting the underlying trauma. This literature review will examine not only the relationship between eating disorders and family trauma but the efficacy of possible cognitive and behavioral interventions that are best suited for these circumstances

Caprice Garcia

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Sarah Reiland, Ph.D.;
& Michael Lipscomb, Ph.D.

Annual Showcase of
Undergraduate Research
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(SOURCE), Winthrop
University, April 2022

CAS – Psychology

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

Religiosity and Mental Health: Exploring the Role of Religion on African Americans Seeking Mental Health Aid

There has been a long history surrounding the different kinds of medical treatment available to Black and white Americans. Black Americans have historically been less likely to receive the kinds of health care available to white Americans across a variety of fronts. Such a history of discrimination has caused the Black population to have a distrust for the medical community, but does this distrust extend to the mental health field as well? In searching for a safe haven away from what they perceive as the institutionalized racism characteristics of mainstream medicine, Blacks often turned to the church, regularly relying on spiritual beliefs rather than medical professionals. In this study I will investigate how religiosity and mental health stigma impact the likelihood of African Americans to seek mental health attention compared to non-Black individuals. A content analysis of personal interviews and data analysis of survey results have been used to test the hypothesis that Black individuals will be less likely to seek out medical attention pertaining to mental health as a result of past experiences of discrimination and will rely more on their faith-based leaders (preachers and deacons) and personal communities (family, friends, teachers) when compared to non-Black individuals. Religion is an important cultural trait within the Black community and is a vital resource for mental health. My research confirms that Black individuals who have a stronger tie to religion will be less likely to seek out mental health professionals compared to Black individuals who do not have a strong religious background.

Miyah Reed

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& O. Jennifer
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Annual Showcase of
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(SOURCE), Winthrop
University, April 2022

CAS – Political Science

(HONR 451H – Lipscomb;
PLSC 490H – Huffmon)

Problems with Neoliberalism: Realistic Alternatives to Consider

This work analyzes neoliberalism, focusing on its problems as both an ideology and an economic policy. Through a review of works by moral, political, and economic theorists, I argue that neoliberalism has contributed to many problems including, but not limited to, economic inequality. I appeal to data that supports my contention that economic inequality creates barriers to the ten central human capabilities laid out in the capabilities approach developed by Martha Nussbaum and Amartya Sen. In addition to discussing neoliberalism and economic inequality, this paper compares alternatives to our current neoliberal economic order, seeking to determine what realistic alternatives to neoliberalism might be realized.

Joseph Dupuy

Honors Thesis Committee:
Adolphus Belk, Ph.D.;
Michael Lipscomb, Ph.D.;
& Brandon Ranallo-Benavidez Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Political Science

(PLSC 490H – Belk;
HONR 451H – Lipscomb)

Infant Mortality in South Carolina: How Underlying Factors Play a Significant Role

Infant mortality rates vary widely across different populations in the United States. Often, race, ethnicity and poverty levels correlate with trends of infant mortality in different areas. Although infant mortality rates in South Carolina (SC) have dropped in recent years, South Carolina continues to have one of the highest infant mortality rates in the nation. Currently, there is a lack of county-specific analysis of infant mortality rates. Our study examines the correlation between infant mortality and various socioeconomic factors including race, income level, education level, and access to maternity wards, in several counties across the state. We hypothesize that SC counties with the highest infant mortalities are also characterized with low median incomes, rural characteristics, and high non-white populations. Using publicly available data sources, including the United States Census Bureau and SC Department of Health and Environmental Control, we identified the counties with the highest (n=8) and lowest rates (n=9) of infant mortality in the state and investigated whether these counties also had significant differences in socioeconomic and geographic representations. We have identified a trend that suggests that infant mortality is highest in SC counties with large non-white populations, with low median income levels and low education levels. We also found that these counties have the lowest numbers of maternity wards/hospitals, suggesting that these counties also have little to no access to health care. Collectively, our findings should be considered when developing state-wide strategies to alleviate infant mortality across South Carolina.

Shea Linton

Honors Thesis Committee:
LaShardai Brown, Ph.D.,
Hope Lima, Ph.D., RDN, LRD, IBCLC;
Brandon Ranallo-Benavidez, Ph.D.;
Chaneka Linton Pigatt
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& Michael Lipscomb, Ph.D.

South Carolina Public Health
Association Annual Meeting,
Myrtle Beach, SC, March 2022
& Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Biology

(BIOL 371 – Brown;
HONR 451H – Lipscomb)

Baby-Led Weaning: Pros and Cons

Weaning occurs when infants gradually reduce their consumption of human milk or infant formula and increase their consumption of solid foods. There are two methods of introducing complementary foods into infants' diets. These methods include baby-led weaning and the traditional method of spoon-feeding. Baby-led weaning focuses on allowing the infant to feed themselves age-appropriate, soft, and safe finger foods. Traditional weaning is parent-controlled spoon feedings of puréed foods. The quantity of food is determined by the infant in baby-led weaning, while in traditional weaning the quantity is determined by the parents. How an infant is weaned also impacts their gross motor development, future eating behaviors, and satiety responses. Infants who are baby-led weaned tend to develop their gross motor skills quicker than infants who are traditionally weaned. Additionally, infants who were baby-led weaned had better appetite control and showed greater satiety responses as toddlers compared to those who were traditionally weaned. Currently, the American Academy of Pediatrics does not support one method of weaning over the other. With the support of current literature, this thesis weighs the pros and cons of baby-led weaning, arguing that this method of weaning provides infants with long-term nutritional and developmental benefits that traditional weaning does not provide. Additionally, this thesis will provide recommendations on how to begin and maintain a safe baby-led weaning approach.

Cassidy Butler

Honors Thesis Committee:
Hope Lima, Ph.D., RDN, LRD, IBCLC;
Jessica Lee, D.C.;
Kori Bloomquist, Ph.D.,
& Michael Lipscomb, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Human Nutrition

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

Assessing Privilege: The Interconnections Among Emotional Characteristics, Awareness, and Personal Experience

Each individual is an intersection of identities related to personal, social, and experiential characteristics. Some of these identities reflect privilege by leading to advantages, opportunities, benefits, and access to resources denied to those who do not share the privileged identity. These privileges can be visible and easily recognized, or they can be subtle and less recognized. The goal of this study was to examine how adults defined and experienced privilege, more specifically if personal experience with privilege drove perceptions of privilege. We also wanted to assess whether personal characteristics, such as narcissism and happiness, influenced perceptions of privilege. Last, we examined how experience with privilege related to motivational persistence.

Courtney Franklin

Honors Thesis Committee:
Merry Sleight, Ph.D.;
Darren Ritzer, Ph.D.;
Tara Collins, Ph.D.;
& Michael Lipscomb, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Psychology

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

It is time to move on: *To Kill a Mockingbird*'s missed opportunities for antiracist concepts

To Kill a Mockingbird, published by Harper Lee in 1960, has often been used as antiracist propaganda in the classroom and in general antiracist rhetoric. However, *Mockingbird* has limitations in its treatment of racism and patriarchy when reading the novel through womanist and intersectional lenses. By only including interiority from Scout and not Calpurnia, Mayella, or Tom, Lee's novel misses opportunities for an intersectional and womanist approach to character building and plot direction. Additional texts that support this idea include work from critic Julia L. Ernst and her claim that Atticus is antifeminist in his mistreatment of Mayella; critic Steven Lubet, who approaches Atticus' actions through a lawyer's point of view; critic Dean Kolbas, whose research describes the modernization of the literary canon. Research examining and defining womanism, intersectionality, and white-savior complexes, paired with analysis of the novel, leads to the conclusion that the novel is not sufficiently antiracist because it not only lacks representation of critical antiracist concepts like intersectionality and womanism, but it is also plagued with ideals in line with a white savior complex. While the novel is indicative of how far society has come in terms of racial equality, it has already peaked in its antiracist ideas and is now out of date in how it treats its characters of color. This is especially noticeable when comparing it to more diversity-driven texts that are given more critical attention today, including the writings of Audre Lorde, Toni Morrison, and Zora Neale Hurston.

Bryn Davies Eddy

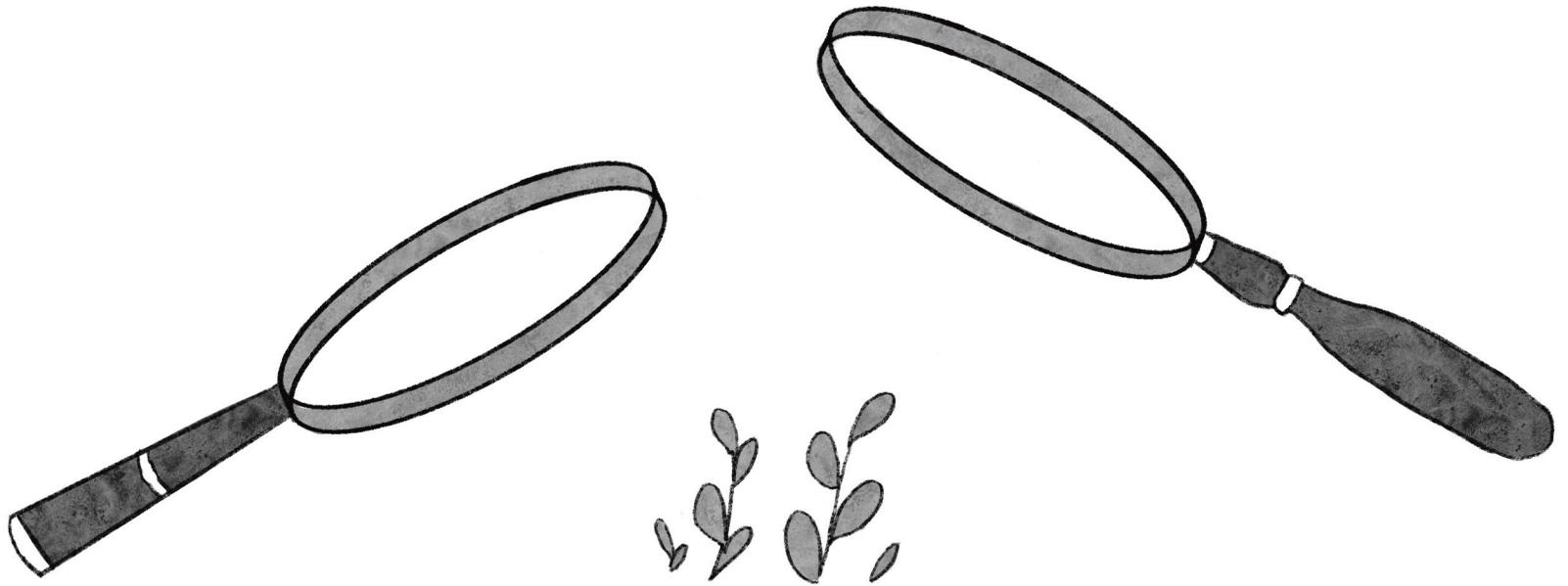
Honors Thesis Committee:
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Robert Prickett, Ph.D.;
& Michael Lipscomb, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – English

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





Public Presentations and Performances

Assessment of well-being using Fitbit technology in college students, faculty, and staff performing breathing meditation

Stress is a common occurrence among higher education populations, and recently, there has been an unprecedented increase in stress and anxiety stemming from the COVID-19 pandemic. Mindfulness can help reduce anxiety and stress and may be a beneficial resource for students, faculty, and staff. Additionally, breathing meditation and physical activity may both increase the ability to cope with a range of different mental health stressors. Therefore, our study aimed to better understand the intersection of mindfulness, physical activity, and well-being within higher education populations amidst the COVID-19 pandemic. Participants included college students, faculty, and staff (n = 34). Participants' physical activity levels, heart rate, and sleep were monitored for two weeks using Fitbit, a fitness tracking device. Participants also completed the Hospital Anxiety and Depression Scale (HADS), Mental Health Continuum Short-Form (MHC-SF), Penn State Worry Questionnaire (PSWQ), and the Mindful Attention Awareness Scale (MAAS) at baseline and immediately after completing the study. Comparisons were made between participants who completed breathing meditation exercises for five minutes a day for one week using the Relax app on the Fitbit (n=17) and a control group, who wore the Fitbit, but did not perform any breathing meditation exercises (n=17). Our results indicated that participants in the treatment group who completed breathing meditation had significantly decreased anxiety scores compared to the control group; however, mindfulness scores were not significantly different for either group. Overall, the evidence suggests that engaging in brief breathing meditation may improve overall well-being among college students, faculty, and staff.

**Lily Garcia,
Leslie Facio,
& Shea Ferguson
(University of
South Carolina)**

Mentor:
Courtney Guenther, Ph.D.

Southeastern Association of Educational Opportunities Programs Personnel (SAEOPP); McNair/Student Support Services (SSS) Regional McNair Scholars Conference, Virtual, June 2021; Winthrop McNair Research Symposium, Winthrop University, Rock Hill, SC, June 2021; Summer Undergraduate Research Experience Symposium (SURE), Winthrop University, Rock Hill, SC, October 2021; & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM103499), National Institute of General Medical Sciences, National Institutes of Health, January 2021 & Winthrop's Ronald E. McNair Postbaccalaureate Achievement Program, U.S. Department of Education TRIO Award # P217A180094.

CAS – Biology

(HONR 451H – Lipscomb;
MCNR 302 – Fortner-Wood)

Physical Activity in Youth Athletes: A review of the Aerobic, Resistance, Bone Strengthening, and Balance Guidelines of the Athletic Youth Population

There is a common misconception in youth athletes about resistance training and the goal of this review is to hopefully educate youth athletes and their parents on the guidelines of physical activity in this unique population including resistance training. Resistance Training has great benefits in the youth population. Exercise physiologists agree resistance training is recommended for youth and benefits their development. Youth athletes that do resistance training are more equipped for the demands of their sports which lowers their risk for injury. Youth athletes need at least 3 days per week of resistance training (2 high intensity with at least 2 days in between). For intensity they can do bodyweight/bands for non-high intensity and for high intensity over 80% of 1RM. It needs to be part of their 60 minutes per day. They can do bodyweight, bands, machines, and free weights with adult supervision. The youth athletic population is a population that is not typically studied, and parents get conflicted messages from different sources. Overall, this is a research-based guideline that can be used by youth athletes and their parents.

Ben Smith

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(EXSC 511 – Wojcik)

Alzheimer's Disease and Its Correlation to Exercise

Over time there has been speculation whether Alzheimer's Disease (AD) is directly correlated through physical activity and/or exercise. Throughout the review(s), we began to dive deeper into breakthrough research that has shown significant references towards alleviation of symptoms related to AD, but not AD itself. In the below reviews, exercise is concluded to be a type of medication that will subdue symptoms of AD. AD is incurable, although there are multiple research trials and experiments we can only alleviate symptoms. In the Aging & Mental Health article, the scientists conducted a 16-week study of comprehensive workout regimens to compare with those who are diagnosed with depression and anxiety in AD patients, as this can provoke many emotional spirals. In all groups depression and anxiety was reduced via exercise modalities like the FITT program. An outstanding FITT component that worked for many patients throughout program consisted of, Aerobic FITT {2 days per wk., moderate; RPE 4-6, 30-35 minutes, chair yoga}. These modalities will serve as a baseline point for patients to use to improve symptoms of AD. Using exercise as a behavioral approach to help patients with AD has shown great success. Although there is more research needed throughout this process to clarify imperfections in the study, we can continue to broaden our knowledge throughout more studies. The treatment of depression in these patients have allowed scientists to see a clearer picture of the superior benefit physical activity can allow.

Madison Haas

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(EXCS 511 – Wojcik)

Exercise With Cardiomyopathy

Maintaining an exercise regimen can be hard, but doing it with an impairment such as cardiomyopathy makes working out that much harder. Luckily though, there are ways to still exercise even with this cardiovascular disease. Cardiomyopathy is a genetic disorder that affects the heart muscles causing them to clog and affects 1:500 of the population. Though cardiomyopathy may affect everyday living, doing cardio, resistance, and flexibility training is still possible. Many studies have been done in order to find the most appropriate way to exercise when dealing with cardiomyopathy. Those who suffer from this disease usually have a decreased tolerance to exercise and, in most cases, cannot be done when strenuous. Through some research and experiments, it was found that resistance training and flexibility training were the most beneficial to people with these conditions, although cardio training was also possible. A resistance training example following Frequency, Intensity, Time, and Type (FITT) recommendations: F: 3-5 days/week, I: 6-8 on RPE scale; 10-12 repetitions, T: 20-40 minutes, T: Body weight exercises: squats, lunges, curls. Those with cardiomyopathy go through many hardships, and with exercise, it can make living with cardiomyopathy a little bit easier. Through exercise, it allows for the blood to flow a little smoother within the body and overall improve quality of life. More specifically, resistance training with higher amounts of reps with little to no weights proved to be the most effective. Keeping exercises at a moderate level tends to be the most beneficial.

Rodney Oldham, Jr.

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(EXSC 511 – Wojcik)

School-based Youth Obesity Programs

Obesity is one of America's highest and most common diseases. As of 2018, it has affected about 14.4 million children and adolescents across the US. Obesity is a major concern due to the risk of developing other chronic diseases. According to the CDC, ages 12-18 hold the highest percentage of obesity in youth. In one of the studies that researched the effects school obesity-based programs have on students ages 6 and 7, they have found that with a program that focused on teaching and allowing the students to partake in healthy, daily lifestyle changes that included increased time in aerobic physical activity and nutritional diet, children were less likely to become overweight. Their results averaged a BMI z score of 0.23 which is significantly lower than the 1.04 obesity mark. For their aerobic exercise program, they need to be active at least 5 days a week with a 40-60% level of intensity which gradually increases over time, starting with 30 minutes every day then increasing to an hour, and exercises that include walking, jogging, cycling or swimming. Through my research I have found successful programs are those that acknowledge every part of the student's daily life, not only at school but at home as well. If more programs focus on providing education and training to the instructors as well as well implementing activities that interest the children and families, then the programs will be more successful.

Demetria Murray

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(EXSC 511 – Wojcik)

The Social Construction of Grief and Loss During the COVID-19 Pandemic

The COVID-19 pandemic has led many to experience different kinds of losses, from job loss to the death of a loved one, in communities worldwide. This especially applies to college students, as anticipated college experiences and opportunities suddenly disappeared. We wanted to examine how the social construction of loss among this population has been shaped by the pandemic and the changed social landscape that has resulted from COVID-19 regulations, such as social distancing and self-isolation. To do this, we conducted semi-structured interviews with college students at a small liberal arts college to learn about their experiences and understanding of loss throughout the pandemic, recruiting participants through convenience sampling. We also looked at university emails and articles released during the pandemic to see how the institution addressed student concerns. Out of our twelve participants, we found that all of them mentioned that they had experienced social changes or social deconstruction and used coping methods to deal with the losses they faced. They also experienced a phenomenon we called COVID socialization, defined as resocialization in the face of new social norms. Our results show the impact of COVID-19 and associated regulations on college students' social construction of and experience with loss.

Taylor Pike, Ford Johnson, Jr., Brooke Bordner, & Kaylee Clapp

Mentor:
Mike Sickels, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Sociology, Criminology, & Anthropology

(SOCL 519 – Sickels)

Perceptions of Classroom Competition Impact Students' Use of Campus Resources

We examined college students' perceptions of competition in the classroom, hypothesizing that increased perceptions of classroom competition would relate to lower campus engagement and higher stress levels. Participants (n=121) were adults with a mean age of 21.62 (SD=2.39). The majority in our demographic categories were women (74%), Caucasian (47%), and heterosexual (66%). Participants responded to scales to assess their campus and peer engagement, stress levels, and perceptions of classroom competition and engagement. Results revealed that college students, across demographic categories, perceived similar levels of classroom competition; however, their individual experiences varied widely. Students who perceived the most classroom competition were more likely to seek health or counseling services. They reported feeling more stress and felt less noticed by their professors. Male students reported feeling most respected by their peers, but ironically, students said that they felt least respected by male peers in the classroom. White peers were also seen as creating competition and showing less respect for other students. Black students were perceived as being the most respectful of and least competitive with their classroom peers. Thus, our data suggest that race and gender do not predict how much competition a student perceives, but where students perceive competition arising from is tied to race and gender. These findings add to the limited information available about perceptions of competition in the college classroom and offer insight into another factor that influences students' campus engagement.

Stephanie Bennett

Mentor:
Merry Sleight, Ph.D.

Southeastern Psychological Association Conference (SEPA), Hilton Head, SC, March 2022

CAS – Psychology

(PSYC 471 & 472 – Sleight)

An Examination of the Effects of COVID-19 Quarantine on Mental Health in College Athletes

Mental health has become an emphasis in the well-being of college athletes. Many athletes have reported abnormal levels of depression and anxiety, which may affect quality of life and total mental health. Therefore, the objective of this study was to examine the relationships between depression, anxiety, quality of life, and total mental health among college student athletes through a cross-sectional secondary data analysis. We further examined differences in these relationships among groups of gender and race, and between those that have been quarantined from exposure to the Coronavirus disease, COVID-19, and those that have not. From the primary study, a sample of 99 National Collegiate Athletic Association, NCAA, Division I college athletes completed self-report measures on the variables. Data was analyzed through one-way ANOVA and post hoc means using the Statistical Package for Social Sciences, SPSS. There was a significant inverse relationship between the variables of anxiety and depression on both quality of life and total mental health. Results showed a significantly higher impact of anxiety on total mental health for collegiate student athletes who have had to quarantine for COVID-19 versus those that did not ($p < 0.05$). There were no significant differences in the relationships between the other groups. These results suggest that while anxiety and depression have a significant impact on quality of life for the group, those that had to quarantine are at an increased risk of lower quality of life and total mental health.

Terrik Johnson

Mentors:

Joni Boyd, Ph.D.;
David Schary, Ph.D.;
& Cheryl Fortner-Wood, Ph.D.

Southeastern Association of Educational Opportunities Programs Personnel (SAEOPP): McNair/Student Support Services (SSS) Regional McNair Scholars Conference, Virtual, June 2021; Winthrop McNair Research Symposium, Winthrop University, Rock Hill, SC, June 2021; Summer Undergraduate Research Experience Symposium (SURE), Winthrop University, Rock Hill, SC, October 2021; Southeastern Psychological Association Conference (SEPA), Hilton Head, SC, March 2022; & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Awarded Second Place in the Health category at the Southeastern Association of Educational Opportunities Programs Personnel (SAEOPP): McNair/Student Support Services (SSS) Regional McNair Scholars Conference

COE – Physical Education, Sport, & Human Performance

(MCNR 302 – Fortner-Wood)

The Effect of White Master Narratives Around Language on Education

White master narratives around language have negatively impacted society and the education system for decades. To begin this discussion, I outline what master narratives are and explain their connection to education, specifically to Social Studies and English Language Arts. In regard to Social Studies, I examine how topics concerning diversity in the history of language are often excluded. Connected to this, history topics regarding diverse figures are altered to fit into this white narrative around language. In English Language Arts, I examined how students are taught grammar and engaged verbally with the language. Concluding with counternarratives that can be implemented to help change the current teaching of language in schools, I offer two wholistic counternarratives that can lead to a variety of strategies. In Social Studies, I propose teaching the accurate historical background of language and history as a whole. This would allow for a variety of student-centered strategies that encourage a deeper understanding of history and language. In English, I propose teaching from a descriptive viewpoint which will open students' minds to the wide variety of language surrounding them. One strategy suggested is changing the definition of code switching to a universal code, thus encouraging students to be aware of how all language works. By implementing this updated meaning of code-switching, along with the other suggested strategies, we enable students to become critical thinkers of language and the world.

Courtney Garrett

Mentor:

Jo Koster, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – English

(ENGL 507 – Koster)

Music Preferences, Gender-based Attitudes, and Perceptions of Rape Culture

We examined music listening habits, acceptance of rape culture, and gender stereotyping. We hypothesized that adults who had been exposed to higher levels of sexually deviant lyrics would be more approving of rape culture and stereotypes. Participants were 98 adults with a mean age of 21.93 ($SD = 5.16$). The majority (74%) were women, Caucasian (54%), and heterosexual (65%). Participants provided their level of agreement with stereotypical gender roles and rape myths, as well as information about their music listening habits. We found significant differences between Caucasian and African American adults in their music listening habits; however, these two groups did not differ on acceptance of rape myths. In contrast, men and women reported similar music listening patterns, but men were more accepting of rape myths. These findings contradicted our hypothesis. Participants who enjoyed listening to the lyrics of sexually explicit music rejected rape myths and male dominance. One explanation is that today's music contains elements of male and female sexual empowerment, perhaps being more salient or common than messages of violence and dominance. Further supporting this notion, we found that compared to heterosexual adults, non-heterosexual adults listened to lyrics more and rejected rape myths more strongly. Our data suggest that music is not the only factor that influences attitudes toward rape myths, as groups (men and women) that shared similar music listening patterns differed in their rape myth attitudes, while groups (Caucasian and African American) that differed in their music listening patterns shared similar rape myth attitudes.

Nastajia Hamilton & Delmarie Wilson

Mentor:

Merry Sleight, Ph.D.

Southeastern Psychological Association Conference (SEPA), Hilton Head, SC, March 2022 & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

This project has been selected as a recipient of a Psi Chi Regional Research Award and invited to be part of the Psi Chi/Committee on Equality of Professional Opportunity Showcase Session and at SEPA

CAS – Psychology

(PSYC 302 – Sleight)



The Effect of Natural Exposure on Mental Health and Academic Performance

We examined the impact of natural exposure during a pandemic on mental health and academic performance in college students. Hypothesis 1 was short-term exposure to nature that enhances memory, hypothesis 2 was short-term exposure to nature decreases depression levels, and hypothesis 3 was long-term exposure to nature benefits grades and attendance. Participants were 41 college students, with the majority being women (34) and White (27). Participants first completed a self-report on their academic performance as well as demographic questions. Participants were then randomly assigned to either stay inside or go outside for 2 minutes. To ensure validity, participants were asked to observe and reflect their surroundings. While in their respective condition, participants were asked to memorize a tongue twister. Participants then answered two questions on elements in the tongue twister (memory task). Participants then answered three questions about outdoor exposure (time spent outside, exercise, and whether they spent relatively more/less time inside since the pandemic began). Finally, participants completed the Positive and Negative Affect Scale which asked their positive and negative emotions over the past week. Unfortunately, hypothesis 1 couldn't be evaluated because 92.7% of the participants could only remember one answer to the tongue twister questions. Hypothesis two was not supported. There was no difference in positive mood, and, contrary to prediction, participants in the outdoor group had a higher negative mood than the indoor groups. Failing to support Hypothesis 3, grades were not related to outdoor exposure.

Sydney Pauley, Braiyan Fierro, & Vincent Via

Mentor:
Matt Hayes, Ph.D.

Southeastern
Psychological Association
Conference (SEPA),
Hilton Head, SC, March
2022 & Annual
Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Psychology

(PSYC 302 – Hayes)

Pervasiveness of COVID Thoughts and Anxiety in Young Adults

We focused on college students, many of whom had financial burdens and susceptibility to COVID as a result of communal living. We hypothesized that we would see the presence of COVID-related thoughts and anxiety, predicting decreased levels of happiness, resilience, self-esteem, and sensitivity to criticism. We also anticipated finding higher levels of procrastination. We thought these negative outcomes would be worse for student-athletes and student-dancers, who were under increased performance pressure. Participants were 83 adults with a mean age of 22.22 (SD=6.20). The majority identified as women (74%), and the sample was evenly split between African American and Caucasian adults. Participants responded to scales to assess resilience, sensitivity to criticism, procrastination, happiness, and COVID anxiety. Results revealed high levels of COVID-related anxiety and thoughts, and these levels were consistent across gender, race, and participation in extra-curricular activities. COVID thoughts occurred more frequently than did anxiety about COVID death, an outcome that makes sense given that young adults are less likely to die from COVID than older adults. Although COVID experiences were similar across young adults, women and those who were more anxious about COVID reported more negative outcomes. Somewhat surprisingly, we found that the more anxious people were about COVID, the less they thought about it. Perhaps denial was an intentional coping strategy for this group.

Aliya Busbee & Diamond McKelvey

Mentor:
Merry Sleight, Ph.D.

Southeastern
Psychological Association
Conference (SEPA),
Hilton Head, SC, March
2022 & Annual
Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Psychology

(PSYC 302 – Sleight)

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

During the last 10-12 years, visible-light photoredox catalysis (VLPC) has been developed into a practical method to achieve a wide variety of synthetic transformations. The approach often involves a transition metal complex of ruthenium or iridium, which, upon absorption of visible light, can participate in a series of single-electron-transfer (SET) events with organic substrates, leading to productive chemistry. However, these transition metal catalysts can be quite expensive, which led our group to investigate the use of less expensive organic photocatalysts in our studies of the alkylation of aryl imines with potassium organotrifluoroborates. In this presentation, the application of a widely used organic photocatalyst, 9-mesityl-10-methylacridinium tetrafluoroborate (**Mes-Acr-Me**), will be explored; data from optimization experiments, along with those from the scope and limitations studies including both imines and organotrifluoroborates, will be surveyed. In addition, results from Stern-Volmer quenching studies—carried out to verify the initial electron transfer event of the proposed mechanism—will be discussed.

Molly Quetel

Mentor:
Jay Hanna, Ph.D.
& Cheryl Fortner-Wood, Ph.D.

Southeastern Association of
Educational Opportunities
Programs Personnel
(SAEOPP): McNair/Student
Support Services (SSS)
Regional McNair Scholars
Conference, Virtual, June
2021; Winthrop McNair
Research Symposium,
Winthrop University, Rock
Hill, SC, June 2021; Summer
Undergraduate Research
Experience Symposium
(SURE), Winthrop
University, Rock Hill, SC,
October 2021; & Annual
Showcase of Undergraduate
Research and Creative
Endeavors (SOURCE),
Winthrop University,
April 2022

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Institute for General Medical
Sciences (8 P20 GM103499)

Awarded Co-Winner, Best
Oral Presentation in the
Physical Sciences at
Southeastern Association
of Educational Opportunities
Programs Personnel
(SAEOPP): McNair/Student
Support Services (SSS)
Regional McNair Scholars
Conference, Virtual,
June 2021

CAS – Chemistry, Physics &
Geology

(MCNR 302 – Fortner-Wood)

Morbid Curiosity and Gender Predict Interest in True Crime

We investigated whether the personality trait of morbid curiosity might be a factor in how people perceive and respond to true crime presentations. Participants were 105 adults with a mean age of 25.28 (SD=12.48). The majority were women (75%) and Caucasian (52%). Participants responded to the Brief Trauma Questionnaire, the Morbid Curiosity Scale, and provided details about their true crime viewing habits. Participants were then randomly assigned to one of three conditions which summarized the Menendez brothers' murder of their parents. One condition was an informational video, one was an entertaining video, and one was a written account. Participants were entertained by all versions of the crime story, and the more entertaining they found the story, the more factual they perceived it to be. This outcome may reflect a society where news and opinion are frequently presented as identical, and thus, the dissemination of misinformation is normalized. Across conditions, gender and morbid curiosity emerged as influential predictors of perceptions. Morbidly curious adults enjoyed the crime presentation and were less afraid, suggesting that they may have approached the story as fulfilling their curiosity rather than focusing on the murder itself. Age, gender, and race did not predict levels of morbid curiosity; however, adults who had experienced more trauma had more morbid curiosity. Adults with trauma experience were a unique group, as they were no more interested in the crime presentations than others despite their greater morbid curiosity. Women saw the crime presentations as informational and fear-inducing, perhaps reflecting their greater likelihood of being victims of personalized, violent crime. These data support identifying morbid curiosity as another potential explanation for the public's increased fascination with true crime.

**Sabrina Clausen,
S'Mira Hargett,
& Shayla Rivers**

Mentor:
Merry Sleigh, Ph.D.

Southeastern
Psychological Association
Conference (SEPA),
Hilton Head, SC, March
2022 & Annual
Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Psychology
(PSYC 302 – Sleigh)

Emotional Responses to Happy, Sad, and Sexual Lyrics in Music

We focused on adults' emotional response to lyrics presented without the accompanying music. We hypothesized that participants' mood would change in the direction of the emotional content of the lyrics. Participants were adults with a mean age of 25.10 (SD=10.47). The majority were women (57%), and participants were almost evenly divided between Caucasian and Black American. Participants began by providing information about their current emotional affect. Then, participants were randomly assigned to read musical lyrics. The conditions varied with the lyrics being happy, sad, or sexual. Participants provided their emotional affect again and then responded to a scale about their use of music to manage mood. Our hypothesis was supported for our sad condition, but not for our happy and sexual conditions. Participants who read sad lyrics became sadder. Adults in the sexual condition had a mood change to become less negative. Perhaps the explicit lyrics increased their general (not necessarily sexual) arousal and distracted them from negative feelings. Younger people felt more negative after reading the lyrics. One explanation might be that they disliked the process of reading music, an idea supported by the fact that people who enjoyed reading the lyrics also reported a mood lift. Caucasian adults reported using music to elicit strong sensations. Thus, it might not be surprising that they did not respond as positively to the music-less and relatively short lyrics as did Black American adults. These findings are a first step to unpack how the separate components of music influence mood.

**Taylor Jones
& Carl Benjamin, Jr.**

Mentor:
Merry Sleigh, Ph.D.

Southeastern
Psychological Association
Conference (SEPA),
Hilton Head, SC, March
2022 & Annual
Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Psychology
(PSYC 302 – Sleigh)

The Effect of COVID Priming on Adults' Expectations of Workplace Accommodations

We examined how COVID-19 experiences related to workplace entitlement and expectations. We hypothesized that adults who were primed to think about their negative, versus positive or neutral, experiences with COVID-19 would exhibit higher entitlement and expect more mental health assistance from their workplace. Participants were 102 adults with a mean age of 29.46 (SD=12.57). The majority were women (65%), and almost evenly divided between Caucasian and African American adults. Participants were randomly assigned to one of three conditions, where they wrote about a positive or negative thing that happened to them during COVID-19, or a control condition where they wrote a self-description. Then, participants responded to scales to assess entitlement, mental health, and self-efficacy. Our hypothesis was not supported. Instead, we found patterns of entitlement that were based on demographic categories. Increased workplace entitlement was characteristic of younger and poorer adults. Increased expectations for mental health accommodations were characteristic of liberally political adults. Increased presence of both of these variables (workplace entitlement and expectations for mental health accommodations in the workplace) were characteristic of Caucasian adults and adults with lower mental health. In other words, we found that people struggling with mental health concerns wanted, and felt they had a right to, a workplace that would support them, and politically liberal adults supported employee's rights to have these accommodations. Caucasians also desired a workplace that would support mental health accommodations, along with feeling personally entitled in the workplace. This combination may reflect an expression for continued privilege.

**Tanna Morrison,
Tommy Benton, III,
& Mykhaela
Seawright**

Mentor:
Merry Sleigh, Ph.D.

Southeastern
Psychological Association
Conference (SEPA),
Hilton Head, SC, March
2022 & Annual
Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Psychology
(PSYC 302 – Sleigh)

Examining College Student's Mental Health: How Parenting Style and Birth Order Affects College Student's Mental Health

Parenting behaviors can be classified into three different parenting styles as classified by Baumrind: authoritative, authoritarian, and permissive. Authoritarian parents have a high control and low warmth style of parenting which means they are likely to not take into account how their child feels or cultivate the appropriate level of support. On the other hand, authoritative parents have a high control and high warmth style, and they tend to foster autonomy and the appropriate level of support. Though there has been extensive research into the impacts of parenting styles on the mental health of children, there is a lack of research into the longer-term effects into young adulthood. We surveyed 98 college-aged individuals about their recent emotional state, their mother and father's parenting style, and their perceived role in the family (psychological birth order). We found that authoritarian mothers appeared to have the most negative impact on their children, linked to an increase in depression, stress, and anxiety. Authoritarian fathering did not predict adult children's outcomes. We discovered that authoritative fathers had a significant impact on actually lowering depression in their college-aged children, and authoritative mothers were linked to lower depression and stress. Permissive parenting did not predict mental health outcomes. These results can aid our comprehension of the long-term impacts of various parenting styles and influence future mental health research and parental education.

**Hope Culbreth
& Lauren Archie**

Mentor:
Matt Hayes, Ph.D.

Southeastern
Psychological Association
Conference (SEPA),
Hilton Head, SC, March
2022 & Annual
Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Psychology
(PSYC 302 – Hayes)

The Role of Stress and Trauma in Immersive Daydreaming and Parasocial Relationships

We examined both stress and trauma as possible predictors of maladaptive daydreaming, as well as exploring additional aspects of fantasy escapism. We hypothesized that adults who had higher levels of stress or trauma would be more susceptible to fantasy escapism and maladaptive daydreaming. Participants were adults with a mean age of 23.01 (SD=8.41). The majority were women (75%) and Caucasian (71%). Participants responded to scales to assess their past experiences with trauma, perceived stress, and maladaptive daydreaming. Our hypotheses were supported. Higher levels of trauma predicted higher levels of maladaptive daydreaming. We additionally found that higher levels of everyday stress related more strongly to higher levels of maladaptive daydreaming than did trauma. In other words, this ineffective and unhealthy coping strategy may be more widely used than previously realized. Across gender and race, adults reported similar levels of maladaptive daydreaming. Compared to heterosexuals, non-heterosexuals engaged in more maladaptive daydreaming; they had also experienced more trauma and stress, which may have been the driving factors in their heightened levels of maladaptive daydreaming. There were no age differences in fantasy escapism, stress levels, or experience with trauma; however, younger adults reported greater engagement in maladaptive daydreaming. Perhaps immersion in social media and technology has primed the younger generation to prefer internal interactions over ones in the physical world. These findings add to our growing understanding of this addictive and problematic form of daydreaming, revealing that it may be elicited by a wider variety of circumstances than previously documented.

**Autumn Hennis,
Savannah Dover,
& Megan Hansen**

Mentor:
Merry Sleight, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Psychology

(PSYC 302 – Sleight)

Students' Perceptions of their Field Experience Using Photovoice

Field education is the signature pedagogy of social work education. BSW students complete their field hours during their last semester in the program, and MSW students complete them throughout their program. This experience allows students to apply their classroom knowledge through hands-on experience. It also provides them with deeper knowledge and practical skills that are essential for the workforce. Given the significance of field education, understanding students' experience in the field is necessary to create better opportunities for them. This is particularly crucial during the current pandemic. This current study seeks to get a deeper understanding of BSW students' field experience using a photovoice methodology, which is a participatory action research. Eleven students participated in the study during the Fall and Spring semester of the 2021-2022 academic year and 44 pictures were collected. Several themes emerged from the photos submitted by students, depicting their current field experience. Among the common themes are: (1) feeling overworked and overwhelmed, (2) seeing flaws in the system, and (3) feeling the lasting effects of the COVID-19 pandemic. These findings have important implications for the kinds of support that may be necessary to help students thrive in their field placements. A failure to address these concerns can result in students who are under-prepared for the field or lose their momentum even before they get started.

Jasmine Smith

Mentor:
Monique
Constance-Huggins, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Social Work

(SCWK 473 –
Constance-Huggins)

Melodic Writing and Thematic Unity in Chevalier de Saint Georges' Quatuor Concertante No. 5 in G Major

String quartets of the Classical Period were known for their unique blend of four parts that varied according to the interpretation of the composer. Among the extant string quartets of the Classical Period are those by the Guadeloupe-born French composer, Joseph Bologne, the Chevalier de Saint-Georges, which often go unnoticed. Because little scholarship has been published about them, they are largely underrepresented works. In 1777, Bologne composed Quatuor Concertante No. 5, a string quartet written at a time when the genre was not yet as popular in Paris as it was in German lands, in part because the founder of the string quartet was the eminent Franz Joseph Haydn. However, Bologne's quartet is composed in an early French style which, by comparison, is very loose and lyrical, thus deviating from the stricter conventions of German practice. Given these differences, this study will examine the thematic structure of the first movement and especially the interaction between the violin and the cello.

Trinity Howell

Mentor:
Ian Pearson, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CVPA – Music

(MUST 563 – Pearson)

Religious Asynchrony Predicts Parent-Child Deception

We examined levels of deception and religious synchrony between adult children and their parents. We hypothesized that children who were religiously similar to their parents would be less deceptive with their parents during adolescence and adulthood. Participants were 143 adults with a mean age of 40.53 (SD=15.80). The majority were women (77%), Caucasian (92%), and heterosexual (84%). We provided common topics and had participants indicate how frequently they lied to their parents about each topic during high school. We then asked participants how frequently they currently lied about the same topics. Next, participants responded to scales to assess their religious beliefs and their parents' religious beliefs. Our hypothesis was partially supported. Religious differences with parents were associated with more deception during the teen years but not the adult years. The change from adolescence to adulthood likely reflects a decreased need for deception with increased independence. Being non-heterosexual was associated with increased overall deception, perhaps reflecting a desire for sexual privacy or need to hide sexual orientation in order to avoid judgment. Age was related to increased deception during adolescence. Older participants may have had to hide more from parents who held more rigid expectations than today's parents, or older participants may have misremembered the more distant past. Gender emerged as more influential in predicting types of deception than did race. Specifically, women hid their sexual behavior more than men, which might suggest the continued existence of gender-based sexual expectations.

**Drew Williams,
Carlee Norwood,
Chelsey Ingram
& Elizabeth Gibson**

Mentor:
Merry Sleight, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Psychology

(PSYC 302 – Sleight)

Preservation Law and Confederate Monuments

Statues and monuments are just one of the ways that society commemorates people, places, ideas, and other landmarks in time. They embody symbolic significance to the people who erect them and to those who experience them generations later. In order to preserve history, local, state, and national government systems in the United States have enacted laws to protect them, but as public opinions and societal norms have shifted through the years, many citizens feel that some monuments, specifically those commemorating the Confederacy in the southern United States, should not continue to stand. In this study, research was conducted using public documents and records to discover what specific protections historical monuments have under the law, on the federal and local levels, but also specifically in the state of South Carolina. The stories behind several South Carolina Confederate monuments were discussed for historical context, and an expert in monument preservation was interviewed for further information on SC state policy and the public controversy surrounding the monuments. Based on the information gathered, it could be concluded that monuments in the United States are heavily protected, and some states, especially South Carolina, have further protections that make it very difficult to legally remove or change them, though it is not impossible.

Olivia Esselman

Mentor:
William Schulte, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Mass Communication
(MCOM 441 – Schulte)

Media Trust, Health-Related Anxiety, and Receptiveness to the COVID-19 Vaccination

We explored adults' willingness to get the COVID vaccine. We hypothesized that adults would be more willing to get the vaccination if they also had more trust in the mainstream media, health and illness-related anxiety, or exposure to individuals who had died as a result of COVID. Participants were 50% men and 50% women with a mean age of 28.02 (SD=11.66). The majority were Caucasian (75%) followed by African American (14%). Participants responded to an online survey that assessed media trust, illness worry, health anxiety, fear of physicians, death anxiety, and COVID opinions. Results revealed support for our predictions that adults with health-related anxiety, experience with COVID, and trust in the mainstream media would be more willing to get the COVID vaccination. We also found that people were more willing to get the vaccination if they were more politically liberal and worried about COVID. In fact, people who did not want the vaccination were more likely to cite politics as the reasoning behind that decision. We found no gender differences in desire to get the vaccination; however, women perceived the vaccination as less safe. Age, similarly, did not emerge as a predictive variable. This information may be useful to COVID researchers and scientists who are interested in those who are more likely to get the vaccine and why. This information may also help develop a better understanding of who to target to receive the vaccine to help get more people vaccinated.

Nicole Kearney & Nadia Goodwine

Mentor:
Merry Sleight, Ph.D.

Southeastern Psychological Association Conference (SEPA), Hilton Head, SC, March 2022 & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Psychology
(PSYC 302 – Sleight)

Meaning Generated as a Result of Suffering

Our goal was to examine the argument that suffering has the potential to give rise to life meaning, a concept popularized by Viktor Frankl and is practiced through Logotherapy. We used archival data to collect societal and historical information about periods of suffering (e.g., war, social unrest) and simultaneous creative output (e.g., art movements, social progress, notable artwork). Such links at a broader level are likely to mirror similar links at a more individualized level, an idea that helps people who are suffering find paths to meaning and growth. These ideas were explored empirically and theoretically.

Jared Nodine

Mentor:
Darren Ritzer, Ph.D.

Southeastern Psychological Association Conference (SEPA), Hilton Head, SC, March 2022 & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Psychology
(PSYC 302 – Ritzer)

Criminal Justice System Favors White People, Black People at Disadvantage, Data shows

As a socioeconomic dynamic, Black men are statistically shown to be disadvantaged at every stage in the criminal justice process in the United States, from initial arrests, to incarceration, to chances at parole. This enterprise reporting and multimedia project displays the complexities of systemic racism in the justice system and was researched using public documents, open records, and official reports from the Department of Justice and the Bureau of Justice Statistics. Expert interviews with law enforcement and scholars revealed the history of the prison system in the United States as a slave patrol. It also provided context to the complex issue of an often racially skewed justice system. The multimedia components of this project included a podcast on the history of the prison system, featuring in-depth information on a Louisiana prison that has been compared to a modern-day plantation, and a graphic video demonstrating that Black men are statistically more likely to be arrested, charged, and sentenced than White men for the same crimes. A Freedom of Information request, filled by the York County Sheriff's Office, for the demographics of the York County Detention Center revealed local trends were consistent with the national rates of overrepresentation of African American as prisoners.

Anna Sharpe

Mentor:
William Schulte, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Mass Communication
(MCOM 441 – Schulte)

The United States Opioid Epidemic: History, Impact and Recovery

For decades the United States has been fighting to get a grip on the raging opioid epidemic sweeping the nation. Despite all efforts to discontinue the production and prescription of multiple addictive drugs, the streets have now been overrun by illegal substances that replace these opioids with more addictive counterparts and have resulted in the loss of thousands of lives. The main culprits in this epidemic are prescription drugs including Oxycontin and street drugs such as heroin and fentanyl. This three-part project highlights their addictive components and the new treatments currently used to address dependency on these drugs. The goal of this project is to educate the public using facts on these narcotics, to highlight how government agencies are enforcing laws, and to report what the United States is actively doing to aid impacted communities. This project uses open records, public documents, information obtained through the Freedom of Information Act, and in-depth interviews as a support for this reporting. This body of work is split into a three-part project. The first project is a deep dive into the history of opioids and their relationship with the United States dating from the 1800s to the present. This piece discusses a timeline of the introduction of different opioid substances into the U.S. and their initial purpose. The second part looks at the United States government's involvement in the opioid crisis and the legal repercussions drug companies, as well as practicing physicians, face. The third part of this project covers current solutions the United States government has set in place to fight this epidemic and highlights what other countries are implementing to combat addiction that could also benefit the United States.

Taylor James

Mentor:
William Schulte, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Mass Communication

(MCOM 301 – Schulte)

Physical Activity: A Treatment Option for Mild to Moderate Symptoms of Anxiety and Depression

In recent years, there has been a spike in sedentary behavior in youth and adolescents (ages 10-19). While the cause of this behavior is largely debated, research suggests it is caused by an increase in technology, time spent watching television and on devices, as well as an overall lack of physical activity. As time spent being physically active has decreased, obesity, anxiety, and depression have increased among adolescents. This literature review examines the relationship between physical activity and sedentary behavior, obesity, anxiety, and depression. Previous research indicates that increased physical activity not only decreases an adolescent's sedentary behavior, but also reduces their risk of obesity. Further, research has shown that physical activity among adolescents improves their overall quality of life (the mental, physical, and social well-being of the individual) and reduces their risk of emotional problems, such as stress, fear, and worry, which are often precursors to clinical anxiety and depression. Studies have also shown that increased physical activity among adolescents has caused a decrease in symptoms of both anxiety and depression. Physical activity plays an important role in minimizing sedentary behavior and decreasing one's risk of obesity, improves an individual's quality of life, and decreases one's symptoms of anxiety and depression. It is important that physical activity be encouraged throughout an adolescent's life, as it can play a significant role in improving their overall mental health.

Bethany Golden

Mentor:
David Scharly, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(PESH 381 – Scharly)

Effect of Two-Factor Authentication On Users' Trust in Their Passwords

This paper covers how Two-Factor Authentication (2FA) affects users' trust in their password-making decision. The 2011 study, Using Fingerprint Authentication to Reduce System Security: An Empirical Study By Wimberly and Liebrock, found that users created weaker passwords secured with a fingerprint scanner. The goal of this paper is to see if the passage of time and the innovation of Two-Factor Authentication methods have changed this result. We do this by conducting a study that examines the strength of passwords between two conditional groups: Treatment (QR code 2FA) and Control Group (password-only). We employ non-parametric statistics and Mann-Whitney U tests to measure the strength of passwords for both conditional groups. Our results conclude that Two-Factor Authentication has no significant difference in the strength of passwords.

Marley Jenkins, Brandon Bradley, & Malik Smith

Mentor:
Andrew Besmer, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CBA – Computer Science & Quantitative Methods

(CSCI 453 – Besmer)

Desolation

Desolation is an installation made of three components: steel forms, plywood forms, and a monoprint pathway. This surreal landscape explores themes of industry vs. nature, the merging of my internal and external landscapes, and feelings of disgust and anguish. One of the major ways these themes are communicated in Desolation is through the use of materials. Both natural materials, such as hair and dirt, and unnatural ones, like concrete and latex, are combined in such a way that the line between natural and unnatural becomes blurred. Additionally, the work investigates the way certain materials and textures can conjure feelings of disgust, despair, and disillusionment. This installation is immersive and inherently interactive. By entering the pathway, each viewer impacts the work. Over time, the pathway may begin to deteriorate, reflecting the degradation of the environment caused by human activity. Desolation was developed intuitively. Through the process of creation, this work has acted as a tool for reflecting on my personal relationship to the earth, as well as humanity's relationship to and impact on it. Viewers who enter Desolation are challenged to reflect on these questions and confront their implications. Further, I have found that this work is representative of both the external landscape I inhabit and the internal landscape within my mind. Visual imagery from the natural world around me, the feelings of both deep love and concern I have for that world, as well as unrelated tumultuous feelings from my daily life have melded together in Desolation.

Jason Lindsay

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by Margaret Fant Lipscomb Endowed Scholarship, Winthrop University, 2021

CVPA – Fine Arts

The Materiality of Flowers

The Materiality of Flowers explores the ideas of sacrifice relating to Ancient Greek times. Many Greek myths retell stories of sacrifice (either forced or given willingly). Through my material usage, I explore sacrifice: one that is naturally given versus one that is taken. In my series, I have created two dresses and accompanying adornments that represent the Goddesses Demeter and Artemis. Nature is a consistent theme in mythology that helps explain the seasons, weather, and harmony of living creatures. In this series I use physical objects of nature to create my work, creating an even stronger bond between mythology and nature. The physical process of picking through the weeds and flowers for my dresses made me think of how the world was sacrificing these plants to me, unwillingly. As I worked with the material, not every seed and leaf stayed attached and I likened each petal that dropped to a sacrifice given to the goddesses. In my first dress Demeter, the wheatgrass shifts from a matte finish to a glossy and translucent finish. This shift in coatings represents the sacrifices given to the Goddess and how she interweaves them with her divinity. There is also a sacrifice of physical labor within each dress and adornment that speaks to how tedious and meticulous each stitch was to make. My work explores the idea of sacrifice given to the gods by representing the goddess Demeter and Artemis through garments and by revealing the sacrifices that went into making each piece.

Into the Dark

Into the Dark is a combination of works that are focused on traumas that have haunted me. I create art as a healing mechanism for the things I have tried to forget. These works are a way of confronting these issues in a comfortable, familiar, and healthy way. These ideas are communicated through interdisciplinary installation and painting. I dive into my own consciousness by exploring how certain traumatic events have affected and shaped my identity. In one of my paintings, I use materials like string to symbolize a web of unacknowledged events and the ways in which they slowly dismantle my mental state and resurface in my mind. In another painting, I use forward imagery to display how faith has helped keep me whole. The different elements I present in the exhibition all relate to one another by representing my mental state that is triggered by memory. One specific memory involves hearing a Silverado truck engine. In this work, I highlight the anxiety and fear I felt in that moment. Into the Dark highlights personal thoughts and moments from which I have taken time to analyze and heal. I would like viewers to see these works and connect with them in a way that will promote accountability, confrontation, and healing within themselves.

Sky Gilbert

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

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CVPA – Fine Arts

My Asia McCollum

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

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CVPA – Fine Arts

Like every woman, we are like you

As a Pakistani Muslim woman, I use photography to introduce the lives of other Pakistani Muslim women, particularly those wearing headscarves. Society has an odd perception of us because of how we are portrayed in the media. They assume we are suppressed by men and/or by religion (Islam). The media has a misconception of who we are and what our faith is. My photographs illustrate that a piece of cloth does not restrict us from our passion or careers. Although our religion may prevent us from wearing revealing clothes, we are not prohibited from making choices we feel are right for us. The choice of wearing a scarf is ours, it is not imposed. We have the right to choose who to fall in love with, what our future careers will be like, and how to live life. My plan is to change the outlook of how Muslim women are perceived by the media and the public. My thesis consists of eight images based on different themes. The themes are honey, purple flowers, sports, water, milk, mirror, makeup, and green leaves. Each photograph embodies each theme and talks about its purpose. The Woman of Drive symbolizes new beginnings of eroticism in marriage. The Woman of Authority uses purple flowers to represent success and royalty. The Woman of Competition portrays the masculinity of a woman. The Woman of Leisure represents the freedom to wear a burkini (modest swimsuit). The Woman of Nurturing symbolizes motherhood. The Woman of Faith is a reflection of spirituality and faith. The Woman of Creativity symbolizes creativity and self-expression. The Woman of Hope depicts green leaves of spring and summer representing hope, renewal, and revival. These photographs depict the captivating lives of Pakistani Muslim women and encourage a more positive perspective of the women.

Progress Toward a Soluble pH-sensitive Ferritin Assembly System

Ferritin is an iron-storage protein with properties that make it ideal for several applications including drug delivery systems (DDS). Some of these properties include: (1) it is a small and stable core structure, it has an interior cavity that can be used to transport medicinal drugs in the body, it is naturally found in humans which minimizes the potential for rejection by the body, and the possibility for genetic modifications. For the drug delivery applications, ferritin encapsulated drugs would need to be released based on an external signal or stimuli; however, native ferritin is an extremely stable protein that requires very harsh conditions (e.g., extremely acidic pH or 2.0-3.0) to trigger dissociation. Consequently, the ferritin protein requires modifications to enable the desired stimuli responsiveness. It has been reported that replacing the E-helix of ferritin with six repeating units of EALA (Glutamic acid-alanine-leucine-alanine) results in a pH switch that triggers the reversible disassembly of the nanocage structure in the 6.0-6.5 pH range. Unfortunately, this modification yields a ferritin construct with marginal solubility at neutral pH and very poor solubility below pH 6.8. The goal of the project was to test the viability of solubility tag additions onto the EALA-modified protein. Two solubility tags, Thioredoxin (Trx) tag and the E. Coli Biotinylation signal sequence, were selected based on their small size and literature precedent for conferring enhanced solubility to globular proteins. Both constructs were successfully cloned. The Trx tagged protein was tested and failed to enhance the solubility to a meaningful degree.

Meshaal Malik

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

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CVPA – Fine Arts

(ARTS 498 – O'Steen)

Courtney Miller

Mentor:
Nicholas Grosseohme, Ph.D.

Summer Undergraduate
Research Experience
Symposium (SURE),
Winthrop University, Rock
Hill, SC, October 2021

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Medical Sciences (8 P20
GM103499)

CAS – Chemistry, Physics &
Geology

Equivocation

Equivocation is about phenomenology and how our experiences of certain objects affect our consciousness. This installation focuses on the objects in a dining room: two chairs and a table. Equivocation transforms these everyday objects into something more ghostly and ethereal to get people to think more about their own experiences surrounding these frequently used objects. The purpose of this work is to get the audience to directly experience phenomenology; to observe, recognize, and react. Equivocation is displayed in a way that is neutral so that the viewer's reactions become part of the work itself. This interactive immersive installation gets viewers to think about their own interpersonal relationships in connection with these objects. While these ghostly objects are certainly the centerpiece of the room, the fractured audio that permeates the space is what makes this work immersive. I ask the viewer to go through the process of searching in order to discover what is kept secret and to contemplate more about themselves and their experiences. The name Equivocation was specifically chosen because of its vagueness and its ability to conceal the truth. It speaks to the ethereality of the objects and liminality of the space. These objects are nonfunctional. With their transparent skin and thin structure, they are a visual remnant of their former selves. No one can use these objects for their intended purpose, which adds to their ambiguous nature. The ubiquity of these objects is what makes them so salient and ideal to reflect on the concept of phenomenology.

Prevention of ACL Injuries

One of the most common injuries that occur in sports today is an anterior cruciate ligament injury, affecting athletes of all ages. Most ACL injuries occur due to a non-contact injury, meaning that the injury occurs while nobody is touching the athlete. Therefore, the injuries are theoretically preventable. This is a topic that has been examined by many researchers, but it has not gained the traction that it deserves. Overall, the goal of this study is to examine why ACL injuries occur and what mechanisms cause the injury. Using that information, we can look at what issues can be addressed to help prevent injury, then provide research-backed solutions to preventing ACL injuries by making athletes more biomechanically efficient through neuromuscular and proprioceptive training.

Nico Sweet

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

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop Uni-
versity, April 2022

CVPA – Fine Arts

Ben Smith

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

COE – Physical
Education, Sport, &
Human Performance

(PESH 381 – Wojcik)

Using Tetracycline-Binding Nucleic Acid Aptamers as Trojan-Horse Tetracycline Delivery Vehicles in the Fight Against Drug-Resistant Bacteria

Illnesses caused by bacteria are now a major public health concern since microorganisms have become increasingly resistant to available antibiotics. As this has occurred big pharma has gradually shifted its focus from developing drugs that cure diseases to those that treat chronic conditions. Thus, rediscovering old drugs and using them for new purposes have become more important. The ultimate goal of this project is to use nucleic acid aptamer-nanoparticle conjugates as vehicles that deliver the antibiotics to cells that are resistant to them. We investigated the therapeutic potency of nucleic acid-silver/gold nanoparticle conjugates as treatments against bacteria that are resistant to the antibiotic tetracycline. We hypothesized that by attaching nucleic acid aptamers that bind 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. In addition, we reasoned that the silver or gold ions released by the nanoparticles will add to the antimicrobial effects of tetracycline. To further prove the viability of this idea we tested three tetracycline binding nucleic acid aptamers. PCR conditions were optimized to make DNA template for RNA synthesis, transcription of RNA aptamers using modified nucleotides was performed, aptamer/linker annealing conditions were optimized, and finally we attached aptamers to gold/silver nanoparticles. In addition, we developed serum stability assays to demonstrate that the RNA aptamers are not degraded by cellular nucleases thus able exert their function in live cells. We are currently testing antimicrobial effect of aptamer nanoparticle conjugates using E. coli 5922.

Joshua Quarles, Allen Livingston, & Ashley Wood

Mentors:
Timea Fernandez, Ph.D.
& Victoria Frost, Ph.D.

2021 SC EPSCoR State
Conference, Virtual, July
2021; Summer
Undergraduate Research
Experience Symposium
(SURE), Winthrop University,
Rock Hill, SC, October 2021;
& Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

Supported by SC EPSCoR:
MADE in SC, NSF #1655740,
SC-INBRE grant from the
National Institute for General
Medical Sciences (8 P20
GM103499)

CAS – Chemistry, Physics &
Geology

Beauty and Audacity

The work Beauty and Audacity functions to embrace and normalize Black natural hair. The series combines photography, fiber arts, screenprinting, and painting while exploring the influence of European beauty standards on self-identity. Inspired by hair catalogs and magazine advertisements, the portraiture celebrates the versatility of Black hair as an art form. The series involves three 46" x 32" mixed media wall hangings. This work consists of self-portraits depicting different hairstyles exploring themes of self-identity and its relation to Black identity and womanhood. In the self-portraits, I am reclaiming the gallery space by having the audacity to be myself. The phrase "good hair" is associated with the words clean, straight, and professional which is seen as the contrary to Black hair. By acknowledging the cultural importance of Black hair and its implication on beauty standards, I share the beauty of naturally textured hair.

Jewel Edwards

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

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CVPA – Fine Arts

(ARTS 498 – O'Steen)

Effectiveness of Nutrition Education in Afterschool Settings for Elementary Aged Children

Pediatric obesity is a troubling problem related to low fruit, fiber and vegetable intake, and high intake of fat, sodium, and calories. The home environment, particularly not eating family meals, and low levels of physical activity also contribute to pediatric obesity. Schools could be an ideal place to teach nutrition education to children. Unfortunately, there is not always time to add nutrition education to curricula. For this reason, people have begun to look to afterschool programs as a place to give nutrition education. Recent research shows that nutrition education with a hands-on component, such as gardening education, can improve children's diets and healthy eating behaviors. This literature review examined the effectiveness of nutrition education programs for elementary-aged children. Each program included a hands-on component, and were taught in an afterschool setting. Studies found that after participating in afterschool nutrition education programs, children were more likely to try new foods, increase their vegetable, fiber, and whole grain intake, experience a decrease in Body Mass Index and Waist Circumference, and spend more time doing physical activity. Studies also found that nutrition education programs in afterschool settings need to be engaging and cost effective.

Kennedy Bajek

Mentor:
Ashley Licata, Ph.D., RD, CSSD

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Human Nutrition
(NUTR 400 – Licata)

Fears of a Black Woman

Fears of A Black Woman is an exhibition that uses sculpture, installation, and screenprinting to address gender, race, politics, and class. Black people have always struggled to be recognized, respected, and protected in a world that is rigid and fractured. The system was never built to help those that are oppressed, but to hinder them further. My work brings light to the continuous fight for equality for Black men and women everywhere. From the time we are infants, our nervous systems program fear into us and make it instinctual. Fear can help protect us from danger, but it can also consume us if we allow it to. My fear is falling victim to a broken system. Knowing how many Black men and women have been mistreated and wronged in America, I feel it is necessary to create work that exposes the many injustices the Black community has fallen victim to. I am creating various pieces that relate to collective fears and my own personal struggles. Addressing the issues that I've faced as a young Black woman, allows me to begin working through inner turmoil, and begin to heal from negative experiences. My work emphasizes the need for change in a nation that has continued to dismiss the lives of Black individuals.

Shadae Tompkins

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Fine Arts

Inhibiting Acid Ceramidase with Phenolphthalein Compounds as a Potential Cancer Treatment

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

Sybil Smith

Mentor:
Christian Grattan, Ph.D.

Summer Undergraduate Research Experience Symposium (SURE), Winthrop University, Rock Hill, SC, October 2021

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM103499) & the Winthrop University Department of Chemistry, Physics, and Geology

CAS – Chemistry, Physics & Geology

Assessing Accessibility of Cooking Supplies and Desirability of a Recipe Book Using Items from a College Food Pantry

To assess the accessibility of various cooking supplies and the need for a recipe book for college students utilizing food items found in the Winthrop University Food Box (a community food pantry) and a campus community garden. A 25-item Qualtrics survey was distributed via Winthrop's student Daily Announcements, social media, and flyers. The survey contained questions about accessibility to kitchen tools, appliances, and seasonings/condiments. Students were also asked about their confidence level regarding preparing meals, barriers to using the Food Box, and their desire for a cookbook. 100 students completed the survey. Participants indicated their preferred and most accessible cooking methods were stovetop, oven, and microwave. Most students reported having access to pots, sharp knives, and spatulas. However, 18.3% of students reported feeling unconfident in preparing meals. The most common barrier to using the Food Box was a lack of awareness. Most students (87.4%) indicated the desire for a cookbook; more specifically, 64% of those indicated they would use a physical recipe book, and 89.9% would use a digital version (i.e., Instagram and TikTok). The results from this study suggest a need for greater promotion of the Food Box and education regarding meal preparation. Most of the students indicated a desire for a recipe book and were open to the ideas of both physical and digital recipes.

Yinka Pelumi & Katherine Guadamud

Mentor:
Ashley Licata, Ph.D., RD, CSSD

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Human Nutrition
(NUTR 400 – Licata)

Expression and Purification of GeneM: A Novel Virulence Factor of *Clavibacter michiganensis*

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

Eric Walters

Mentor:
Jason Hurlbert, Ph.D.
& Cheryl Fortner-Wood, Ph.D.

Southeastern Association of Educational Opportunities Programs Personnel (SAEOPP); McNair/Student Support Services (SSS) Regional McNair Scholars Conference, Virtual, June 2021; Winthrop McNair Research Symposium, Winthrop University, Rock Hill, SC, June 2021; Summer Undergraduate Research Experience Symposium (SURE), Winthrop University, Rock Hill, SC, October 2021; & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by Made in SC, NSF, 2021 & SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM103499)

CAS – Chemistry, Physics & Geology

(MCNR 302 – Fortner-Wood)

The Inhibition of Sphingosine Kinase Using Modified Variants of Zone 2 of Sphingosine Kinase Inhibitor 1

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 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 Molinspiration and then uploaded the structures into USCF Chimera to visualize and evaluate the docking analysis using Autodock Vina. The binding energies of each inhibitor were recorded from the docking analysis. The docking energies led to the synthetic development of several zone 2 inhibitor compounds which will ideally lead to an optimized inhibitor of sphingosine kinase.

Jomar Lewis

Mentor:
Christian Grattan, Ph.D.
& Cheryl Fortner-Wood, Ph.D.

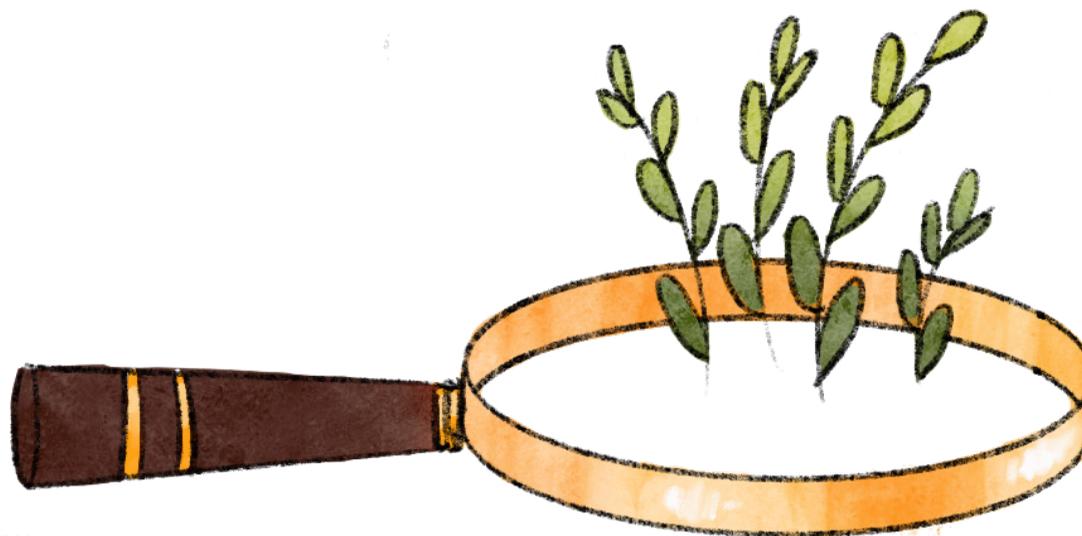
Southeastern Association of Educational Opportunities Programs Personnel (SAEOPP); McNair/Student Support Services (SSS) Regional McNair Scholars Conference, Virtual, June 2021; Winthrop McNair Research Symposium, Winthrop University, Rock Hill, SC, June 2021; Summer Undergraduate Research Experience Symposium (SURE), Winthrop University, Rock Hill, SC, October 2021; & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by an NIH-INBRE grant from the National Center for Research Resources and the National Institute for General Medical Sciences as well as the Winthrop University Department of Chemistry, Physics, and Geology.

Awarded first place in Physical Science in July 2021 at the 2021 Southeastern Association of Educational Opportunities Programs Personnel (SAEOPP); McNair/Student Support Services (SSS) Regional McNair Scholars Conference

CAS – Biology

(MCNR 302 – Fortner-Wood)



Germanotta

This body of work titled *The Trinity* consists of three separate pieces, which depict female icons. Germanotta, Parton, and Jefferson are large-scale portraits made from tens of thousands of individual stickers that are placed in a ritualistic manner. I use a variety of values, and different sized stickers to create large-scale photorealistic portraits. I tend to produce their work in greyscale, with a focus on detail and likeness to the model. These portraits are intended to capture the viewer's attention through the use of media, size, and wall placement. The specific placement of Germanotta is to ensure that she is looking down upon the viewer, elevating her to a god-like status. The portraits that I create are a visual representation of skill and masterful use of the medium.

Pahj

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

Winthrop University
33rd Undergrad Juried
Exhibition

Awarded Lewandowski
First Place at the 2021
Winthrop University
Juried Art Exhibit

CVPA – Fine Arts

The Impact of Covid-19 on the Freshman Experience in Fall 2020

This project examines how Covid-19 impacted the communal experience of college among incoming freshmen in fall 2020. We chose this population as they entered college during unprecedented times that completely altered how universities function. While the pandemic has continued until fall 2021, the university is functioning closer to normalcy at this time. We conducted our research among students who started college for the first time in fall 2020 at Winthrop University. The social context of Winthrop was deeply altered in fall 2020, with a virtual start, and classes and school events primarily operating online. Communal spaces were closed or limited and masking was required in all public areas. We used focus groups to research their experience as well as observe their interactions as a group. Our findings concluded that Covid-19 did impact how college freshman experienced their first year of college in the fall of 2020. Online classes forced students to stay in their room for extensive periods of time. They also had a very hard time cultivating meaningful relationships with peers and professors. External factors came into play during these students' first year of college, such as, familial care and obligations and working more than usual. Despite clearly experiencing isolation during their first semester, we did find that most students held a positive attitude towards the institution which we believe stems from a desire to be happy with the school they are in, even if they did not experience true community.

Nicole Holbert, Samantha Kennedy-Scott, Tori Ward, & Brandon Messmann

Mentor:
Mike Sickels, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Sociology,
Criminology, &
Anthropology

(SOCL 519 – Sickels)

Comparison of Commercial DNA Extraction Kits for Use on Human Breastmilk

For-profit donor human milk organizations have DNA-based proprietary methodology for testing incoming milk for purity. However, there is currently no standardized methodology for extracting DNA from human milk. Microbiome research has shown that DNA quality can vary depending on the extraction methodology. This study assessed the quality and quantity of DNA extracted from four commercially available DNA extraction kits – including one kit that was specific to human milk. This study was for method validation only. One donor was utilized to provide a 3-ounce sample. The sample was aliquoted into 70, 1-mL microcentrifuge tubes. Aliquots were randomized into one of three categories: fresh extraction, extraction after freezing, and extraction after purification for storage at room temperature. DNA extraction was performed using four commercially available DNA extraction kits and DNA was analyzed for quality and quantity using a NanoDrop Spectrophotometer. Results confirmed differences in DNA quality and quantity between extraction kits. The Plasma/Serum Circulating DNA Purification Mini Kit (Norgen Biotek, ON, Canada) provided significantly more DNA, consistent purity as measured by 260/280 and 260/230 ratios, and DNA quantity and quality was similar between fresh and frozen human milk samples. Our results suggest that DNA quality and quantity is highest when extracted using the Plasma/Serum Circulating DNA Purification Mini Kit. To ensure reliable quality assurance protocols for testing donor human milk, standardized methodology for extracting DNA from human milk is necessary. The Plasma/Serum Circulating DNA Purification Mini Kit is consistent, providing high quality and sufficient quantity for downstream analysis.

Cassidy Butler & Amy Matsumoto

Mentor:
Hope Lima, Ph.D., RDN, LRD, IBCLC

North Carolina Academy
of Nutrition and Dietetics,
September 2021; Summer
Undergraduate Research
Experience Symposium
(SURE), Winthrop University,
Rock Hill, SC, October 2021;
& Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

Supported by the Winthrop
University Biomedical
Research Fund

CAS – Human Nutrition

Impact of Multiple Freeze/Thaw Cycles on Nutritional Integrity and Bioactivity of Human Milk

The Neonatal Intensive Care Unit (NICU) requires any donor milk that is thawed to be fed to premature infants within a certain timeframe, depending on the storage of the donor milk. These recommendations protect premature infants from potential exposure to contamination from human milk. Current recommendations in the United States and in NICUs do not allow for the re-freezing of human milk once it has been thawed. The aim of this experimental study was to determine the influence of multiple freeze/thaw cycles on the nutritional integrity and bioactivity of donor human milk. Human milk samples from 50 participants were collected by WakeMed Mothers' Milk Bank to be shipped to Winthrop University. Samples were then subjected to four freeze-thaw cycles and analyzed for the following components after each thaw: bacterial analysis (total coliform, *S. Aureus*, total aerobic) and macronutrient analysis (total protein, total fat, carbohydrates). A statistical comparison of bacteria (total coliform, *S. Aureus*, total aerobic) and macronutrients (total protein, total fat, carbohydrates) were done by using a repeated measure of Analysis of Variance (ANOVA).

Jaeden Choice

Mentor:
Hope Lima, Ph.D., RDN, LRD, IBCLC

Summer Undergraduate
Research Experience
Symposium (SURE),
Winthrop University, Rock
Hill, SC, October 2021 &
Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

Supported by the Winthrop
University Biomedical
Research Fund

CAS – Human Nutrition

Testing the Model of NUR Function: Incorporation of non-Standard Amino Acids

Nur is a unique member of the Fur family of metalloregulators, in that it is the only Ni-sensing member of the family and, to date, is only present in the bacterium *Streptomyces coelicolor*. Understanding Nur is paramount to understanding how the Fur family has evolved to serve diverse functions. Nur is a symmetric homodimer with monomers bound at the dimerization domain. Each monomer contains two metal binding sites: one M-site and one Ni-site. Previous literature indicates that the Ni-site operates as the regulatory site for Nur, however research in the Grosseohme lab has evidence that suggests the M-site as the regulatory site. This project proposes to use EPR and FRET as complimentary techniques to test the working model of regulation. This will be accomplished by attaching probes at the specific sites in the protein structure. The magnetic interactions of the EPR probe will allow studies on movement of the flexible linker, while large conformation changes will be detectable by the relative distance between the FRET probes. To ensure that the probes are only attached where desired, Nur must contain a completely unique amino acid at the correct locations, making incorporation of non-standard amino acids necessary. In this project, the Nur gene is cloned into an expression plasmid and mutated at the desired locations. Transformation into the genetically reprogrammed organism needed for non-standard amino acid incorporation and purification of mutated Nur is underway.

Veda Lightfoot

Mentor:
Nicholas Grosseohme, Ph.D.

Summer Undergraduate Research Experience Symposium (SURE), Winthrop University, Rock Hill, SC, October 2021

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM103499) & Winthrop Research Council

CAS – Chemistry, Physics & Geology

Remembering the Forgotten

How does one bring new life and meaning to old, forgotten things? I plan on doing this by creating a book that combines the dusty, boring parts of history and facts with the fun and exciting parts of life. Those who read this book will learn about artifacts of South and Central America. Full color illustrations showcase what artifacts would have looked like in use, during the time and place that they were created. This will teach people about the rich cultures that surround these everyday items. Along with the in-use illustrations, there will be black and white technical drawings and a written history for each artifact included. With this project, I want to delve into the world of people that are not like me, learning the ins and outs of what their lives were like in order to better understand and relate to them. And once I've done that, I want to share it with everyone else.

Hannah Parris

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Design

(VCOM 486 & 487 - Tselentis)

SANCTUS

My manga story proposes a look at Christianity through a critical lens. Christian stories usually pertain to teaching lessons from the Bible. However, the same stories and teachings have also instilled fear and justified harmful ideas against minority groups. I want to take these issues and talk about them through a visual narrative in my thesis project. Ideally, the target audience will be young adults who collect and read dark fantasy manga. My initial chapter of the story, summary of the plot, and character designs with color samples are part of my manga proposal.

Joy Parker

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Design

(VCOM 486 & 487 – Tselentis)

The Coupled: A Graphic Novel Proposal

Identity, especially in a creative environment, is something which we are encouraged to grasp by the end of our college careers. I've found, however, that this is a big question. College alone is a major step towards autonomy which entirely shifted my sense of self, and I'm sure that many in my situation can relate. As a result, I want to center a story around this idea of autonomy, and what it means to find one's personal identity. I will be creating a graphic novel proposal, titled *The Coupled*, which will consist of both a written and digitally illustrated portion. *The Coupled* is an Industrial Fantasy centering around Dorje, a 16-year-old boy who is bound to a deity of chaos. Dorje deals with conflicts of morality and autonomy and must work with the Resistance to prevent a fascist empire from initiating the "Second Restoration". I hope to create a compelling fantasy world that pulls from the ideas of political and personal freedom. My intention with this project is to create a story which relates to and inspires those who, like me, are undergoing a major shift in their independence. Not only do I want to establish a voice in the world of fantasy, but I also want to create something that I can use to kick start my graphic novel career and catch the eye of potential publishers.

Joshua Lively

Mentors:
Jason Tselentis, M.F.A.; Elizabeth Dulemba, Ph.D.; Dustin Hoffman, M.F.A.; & Olivia Stephens, (Rhode Island School of Design) B.F.A.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Design

(VCOM 486 & 487 – Tselentis)

The Diary of Iaso

I intend to create a field guide that tells the story of a scientist, Iaso, who works for a corporation that owns the entire world. The corporation runs this world, but because their lives are good citizens rarely try to act out of line. Iaso has this same train of thought until he stumbles upon an abandoned town and discovers weird and violent creatures. When trying to leave, he digs up the truth behind the creatures and the corporation itself. The story will be told from Iaso's point of view as he writes diary entries and sketches what he encounters throughout. The diary itself will be a physical diary, with the illustrations and writing being done with pen and ink by hand. This field guide allows readers to put themselves in this scientist's shoes, creating a sense of wonder and fear, entertaining and telling a story.

Dani Fields

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Design

(VCOM 486 & 487 – Tselentis)

The Pillow King

In children's books, the relationship between parent and child is often shown. What isn't always shown are the hiccups that can happen in this relationship. In my picture book, I tell the story of a rebellious, imaginative child who doesn't want to do what his parents ask, but is still loved and cared for by them as they work through it. The book will serve as a fun and fantastical twist on a bedtime story that emphasizes and focuses on the importance of the relationship between a child and their parents/guardians, and how a bedtime routine can be a great bonding experience for both parties. I hope to find a balance between entertaining and conveying an important message about the relationship between parent and child, while also creating a memorable story with a lasting impact. A child reading this book should feel secure in the relationship they have with their parents, and the adults and parents reading this should receive something in return too. Parents should learn from it and appreciate that their child won't be perfect and behave exactly as they would like. My book shows how actions can affect relationships.

Sierra Wheeler

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Design

(READ 290 – Sigmon)

Exploration of RitR Oxidation and Dimerization

All organisms need to maintain redox homeostasis through establishment of a normal steady state and redox signaling by using a broad range of mechanisms and redox sensing transcription factors. Surprisingly, none of the common redox-sensing transcription factors have been identified in streptococci. However, RitR (Repressor of iron transport Regulator), a protein originally identified due to its role in iron homeostasis in *Streptococcus pneumoniae*, has emerged as the founding member of a novel family of redox sensors in prokaryotes. In the originally proposed model of RitR function, there is failure to demonstrate a mechanism for sensing intracellular iron concentrations, which is critical for metal and redox homeostasis. Recently, Glanville et al found a single cysteine (Cys128) redox switch in the linker domain and its oxidation state influences pneumococcal growth in an oxygen-dependent manner and that it represses the pneumococcal iron uptake (*piu*) operon in the oxidized form and reduces the amount of intracellular free ferrous iron. The crystallographically determined structure of RitR, in the oxidized and reduced state, suggests that the regulatory mechanism is dependent on the unraveling of helices and formation of an inter-protein disulfide bridge, allowing DNA binding and transcriptional repression of the *piu* system. In vivo, H₂O₂ is the primary oxidant that drives this oxidation and dimerization. To better understand the role that the phosphorylation has on the function of the protein, this project aims to generate singly-phosphorylated RitR (spRitR) constructs with phosphoserine at each of the phosphorylation sites, using nonstandard amino acid (NSAA) technology. The degree to which site directed phosphorylation impacts oxidation will be assessed for each of the spRitR constructs and compared to the fully modified and unmodified forms of the protein.

Lily Leistiko

Mentor:
Nicholas Grosseohme, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM103499)

CAS – Chemistry, Physics & Geology

(CHEM 551 & 552 – Hurlbert)

The Waste

The world is only as big as what the artist creates. Fictional worlds are often neglected, narrow, and cliché. In order to immerse yourself in a story, the world must be believable. My intention is to create narrative-driven concept art and a graphic novel proposal for a fictional world. Presented in full color, I will be creating a world playing off the term 'trash city.' Instead of focusing on the dystopian aspects associated with 'trash city,' my story will be a journey into a new world. Throughout the journey there will be adventure, discovery, friendships, and—of course—some villains to fight along the way. I will fill this world with various environments, creatures, peoples, tools, and lifestyles that further the story. This story will not be a commentary on the environmental problems of our world but rather a fully fleshed out world that can amaze, frighten, and excite the audience.

Noel Heil

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Design

(VCOM 486 & 487 – Tselentis)

Olykoek

I have combined my love of hand lettering and illustration to create a zine, a self-made publication primarily circulated in the counter culture to distribute information quickly and affordably. Zines throughout history have covered broad topics, deemed reflective for the creator as well as the audience. For my zine titled, Olykoek, I am creating a short recipe book with unique summer desserts. "Olykoek," translates to fried dough and is the original name given to the donut which will be the first recipe for the zine. I picked this subject because I intend to make this a biannual publication and would have a lot of options in future volumes, which is a way for me to stay connected with a project long term as well as see my growth and evolution as a designer throughout a series of work. I think it is really important in every discipline to keep evolving, so this zine is a way for me to have fun along with keeping my skill set sharp. Along with creating the content and layout for the zine, I will also be printing and collating the publication by hand. Printing and book binding have always interested me and I feel that this project is a proper way to encapsulate all of my interests in a cohesive format.

Sustainable Mutations

Thrifting, upcycling, and raging against the fast fashion industry allow people to express themselves, not only strive to "save the planet" but also make for an attractive narrative. My project will appeal to these ideals, transforming stories and offering new purposes to used and otherwise discarded, everyday items. My exploration of sustainability through hands-on artistic practices will be documented and reflected throughout my process in conjunction with constant research methods into techniques and tools. Finally, I will produce a collection of final transformed products of various mediums and elements as, not a conclusion, but an introduction to the future possibilities of intentionality, creativity, problem solving, and sustainability working together cohesively.

Brie Tierney

Mentor:
Jason Tselentis, M.F.A.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Design

(VCOM 486 & 487 – Tselentis)

Kendall Bayne

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Design

(VCOM 486 & 487 - Tselentis)

The Briar Fairy

The realm of Christian fantasy is not a form that is often used to deliver the gospel and other important lessons in the Bible. In my thesis, I will write and illustrate a retelling of the public domain stories, Briar Rose and Sleeping Beauty. My retelling will serve as a tribute to these stories but will present them in a new way and be told from a Christian and biblical point of view. My goal is to present the story of God's armor, an important lesson for children, through this fairy tale in a fun, fantastic, and fulfilling way. The book will be 28 pages long, printed physically, and will tell the classic story in a new way to accompany the lesson of God's armor. I want to teach through this familiar story the importance of valuing others and working hard to do what is right. At the end of the book, I will include the verses describing God's armor that will be paralleled in the book. The intention of this is to spark conversation between parent and child when this book is being read, creating an intimate and real conversation about Christ with children between the ages of six to twelve.

in here.

The three-personality theory denotes that there are three personas: the persona for the world, the persona for your inner circle, and the persona for yourself or "true-self." Many, including myself, might face difficulties determining whether they are presenting their true or genuine self. I want to treat this art project as a therapeutic tool for myself and others struggling with the idea of help. I also aim to convey the "true self" by showing the world you create in your mind along with the personalities you inhabit using my own perspective. I will create a short story utilizing animation and storyboarding to tell a fantastical tale visually depicting the world inside the mind based on my own personal mental health experiences. I hope to reassure others who are coming to terms with their own mental health.

Izzy Wallace

Mentors:
Elizabeth Dulemba, Ph.D.;
Jason Tselentis, M.F.A.;
Casey Cothran, Ph.D.;
& Ruth Sanderson,
(The Glasgow School of Art) M.A.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Design

(VCOM 486 & 487 – Tselentis)

Kierra Byrd

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Design

(VCOM 486 & 487 – Tselentis)

Back to the Rink

My short animation follows the life of the main character, Yaminah, once she loses her job. After trying unsuccessfully to bounce back, she realizes that making a career of her hobby is what will bring her happiness. Because this project is targeting adults and teenagers, I want to stress the variety of ways to make a career of something you already love without external pressures of working in a corporate setting. The subject of the story, Yaminah, uses roller skating to de-stress and exercise. Most regular skaters you find at a roller-skating rink use it as a safe space with positivity and vibrant energy for making friends and learning new moves. Yaminah uses this energy and turns it into a career. I hope to inspire adults and teenagers alike to fall in love with a hobby that changes their life for the better.

Marquila Winston

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Design

(VCOM 486 & 487 – Tselentis)

To Dust

To Dust is a body of work focused around a selfish aspect of healing. Centered around Life, Death, and God, this exhibition is composed of three individual sculptural pieces that correlate with these themes. All three are very concept driven and have an even balance of found and crafted elements. Ranging from concepts that revolve around recent personal events, to trying to make connections with the circumstances of others, this body of work is about making sense of the human experience. After the Line is a large hanging installation sculpture, composed of wood, steel, and string. This piece is based around the experience of my partner of three years being diagnosed with bone cancer. Rudus is a floor based sculpture, crafted out of stones, dishes and cups, and wood from abandoned furniture. This piece is centered around religion and sexuality, and my personal experience with it. she would like this is a collection of five shadowboxes, all housing one hundred and ninety seven matchboxes that my partner's grandmother left behind after passing away. These pieces, though separate in concept and location, share connections to Life, Death, and God. These works beg for healing, and although I have previously created art to help others heal, this body of work is based around a selfish aspect of healing. To be able to process the occurrences based around these artworks, it is mandatory to take a step back and allow myself to heal without any outside influences.

Lauren Baechel

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Fine Arts

Stamps Around The World

How might I highlight cultural diversity around the world via postage stamps? Postage stamps are an optimal choice to showcase stories that are passed down in multiple cultures. I will be focusing on the creation of six stamps inspired by the folktales surrounding natural wonders from six countries: Dragons of the Aurora Borealis in northern China, the grieving mother of the Tunupa and Salar de Uyuni Salt Flats in Bolivia, the whimsical Fairy Chimneys in Turkey, the curious rock troll of the Reynisdrangar Cliffs in Iceland, the black stingray of the Great Barrier Reef in Australia and finally the seven sisters of the Pleiades according to Kiowa Legend in the US. Each will be designed and illustrated by me and printed using the Risograph (Riso) printer to maintain stylistic harmony.

Anna Hollis Townsend

Mentors:
Jason Tselentis M.F.A.;
Tamra LaValla, B.F.A.;
& Griffin Glaze B.F.A.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Design

(VCOM 486 & 487 – Tselentis)

Contributing Factors of Success or Failure of Environmental Grassroots Movements in Rock Hill

The purpose of this research project is to study the factors that impact the success or failure of environmental grassroots movements. For the purpose of this study an environmental grassroots movement is defined as a community-led organization or initiative aimed at making positive changes in its community for the sake of the environment or another cause. Grassroots movements work from a bottom-up approach and can lead to long-term changes within a community because it starts on an individual basis. During this study qualitative data was collected by interviewing people who participate in select environmental grassroots movements. Each interview ranged from 30 to 60 minutes and consisted of four demographic questions and six core questions pertaining to the study. This study seeks to find which factors are deemed most impactful from an inside perspective of the organization. Three factors to be considered in this study are interconnectedness of the group, funding sources, and active participation within the group. Interconnectedness of the group is defined as the personal connection the individual feels to the good. Funding sources can be described as donations, membership fees, or various forms of government funding. Active participation is the amount of interaction an individual has with the group.

Bobbie Owen

Mentor:
Brent Woodfill, Ph.D.
& Cheryl Fortner-Wood, Ph.D.

Southeastern Association of Educational Opportunities Programs Personnel (SAEOPP): McNair/Student Support Services (SSS) Regional McNair Scholars Conference, Virtual, June 2021; Winthrop McNair Research Symposium, Winthrop University, Rock Hill SC, June 2021; & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Interdisciplinary Studies

(MCNR – Fortner-Wood)

An Exploration into the Lineage of Contemporary Fantasy Painting

As part of my personal journey preparing for a career in fantasy illustration and a life in art, I have studied the lineage of contemporary painters and fantasy image creators that influence the market today, such as Howard Pyle, John Bauer, James Gurney, Brian Froud, and many more. These artists have influenced the generation of illustrators producing today; some of my biggest influences being Jesper Ejsing, Sidharth Chaturvedi, and Seb McKinnon. I have set out to become another illustrator in the lineage, and to do that I must prepare myself for a life of illustration, using their wealth of published knowledge to smooth the cracks in my own process. My thesis is a collection of paintings that draw from these influences and offer a new perspective that will allow me to break into the fantasy painting market.

David Beck

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Design

(VCOM 486 & 487 – Tselentis)

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

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

Joel Haley

Mentor:
Sal Blair, Ph.D.

Summer Undergraduate Research Experience Symposium (SURE), Winthrop University, Rock Hill, SC, October 2021 & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by Winthrop University Research Council Grant SC21008

CAS – Biology

Divining Shakespeare's Rival Poet

Of Shakespeare's 154 sonnets, numbers 78–86 feature his infamous poetic rival—the poet of “great verse,” gulled by the intelligence of “that affable familiar ghost.” For centuries, literary critics have searched a vast roster of contemporary candidates for the identity of the poet with whom he vied for patronage. The metacritical purpose of this paper is threefold: first, to qualify Henry David Gray's argument in “Shakespeare's Rival Poet”; second, to augment MacDonald P. Jackson's claims regarding William Shakespeare's rival poet as a hybrid figure; and third, to argue that the rival poet's identity is presumably Christopher Marlowe—or perhaps an amalgam of Marlowe and George Chapman. Although scholars such as Gray suppose that the Rival Poet must certainly be Edmund Spenser, such claims obfuscate the Sonnets' historicity and Spenser's biography. If Shakespeare's Sonnets are considered autobiographical literature composed between 1593 and 1600, Spenser's residency in Ireland until 1598 contradicts the rival poet's several mentions and his sudden disappearance partway through the sequence. Marlowe is a likelier candidate. Allusions to necromancy in *The Tragical History of the Life and Death of Doctor Faustus* and biographical correlations between the rival poet's disappearance and Marlowe's death suggest that he, and not Spenser, is Shakespeare's poetic adversary. However, since Shakespeare refers to his rival poet with the plural noun “writers” and alludes to Chapman's translations of the *Iliad* and the *Odyssey*, the rival poet may have been prompted by—and be an amalgam of—at least these two contemporaries.

Shyanne Hamrick

Mentor:
Matthew Fike, Ph.D.

Winthrop's English Department Conference, Rock Hill, SC, March 2022 & Winthrop University English Department Undergraduate/Graduate Research Conference, Virtual, March 2022

CAS – English

(ENGL 203 - Fike)

Post-traumatic Growth Predicts Defensive Responses to Reminders of Death

We conducted an experiment to test whether differences in post-traumatic growth predicts use of defensive strategies in response to reminders of death. We hypothesized that when reminded of death, those with low (versus high) post-traumatic growth would be more defensively reactive and more likely to report inflated self-esteem and reduced thoughts about mortality. Participants were 22 men and 58 women (45 % White; 37 % Black) who responded to the Post-Traumatic Growth Inventory. Afterward, they were randomly assigned to write about what would happen to them if they died (mortality salience condition) or experienced pain (control condition). They then responded to items assessing self-esteem and death anxiety. A 2 X 2 (post-traumatic growth level X experimental condition) MANOVA with LSD post-hoc tests revealed that participants with low post-traumatic growth in the mortality salience condition reported the fewest number of death thoughts [$F(3, 79)=6.7, p=.01$]. Furthermore, in the mortality salience condition, those with low post-traumatic growth reported higher self-esteem than those with high post-traumatic growth. However, in the control condition, those with high post-traumatic growth reported higher self-esteem compared to those with low post-traumatic growth. [$F(3, 79)=3.88, p=.05$]. In sum, we found that adults who experienced low (versus high) levels of growth in response to trauma engaged in defensive strategies when reminded of death. Specifically, they denied having thoughts about death and reported inflated self-esteem. Our findings advance our understanding of how mortality salience impacts individuals with differing levels of growth following trauma.

Sophie Pringle

Mentors:
Donna Nelson, Ph.D.
& Merry Sleigh, Ph.D.

Southeastern Psychological Association Conference (SEPA), Hilton Head, SC, March 2022

This project was selected for a Psi Chi Regional Research Awards at SEPA

CAS – Psychology

The Relationship Between STEM Teacher Self-Efficacy and Retention with Respect to the COVID-19 Pandemic

Teaching during COVID-19 offered surprising benefits along with the obvious frustrations in the virtual classroom. This paradox led to an investigation of teacher responses to and experiences during the pandemic. While news outlets offer perceptions of the general public, research-based articles provide more accurate information. There is little research thus far on teaching science, technology, engineering, and mathematics while remote instruction was necessary. A spring 2021 survey of SC Noyce Program graduates provided initial insight into STEM teachers' feelings in terms of their self-efficacy as it relates to their intention to stay in the classroom before and during the pandemic. The current study enhances understanding of those results through qualitative data. The previous survey responses informed the development of questions for focus groups conducted in spring 2022. Results from focus group data analysis will address the question: What is the nature of the relationship between STEM teachers' self-efficacy and their intent to remain in the classroom in relation to the COVID-19 pandemic?

Jasmine Moyd

Mentor:
Kelly Costner, Ph.D.

Southeastern Association of Educational Opportunities Programs Personnel (SAEOPP): McNair/Student Support Services (SSS) Regional McNair Scholars Conference, Virtual, June 2021; Winthrop McNair Research Symposium, Winthrop University, Rock Hill SC, June 2021; & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by McNair Scholars Program

CAS – Mathematics

(MCNR 302 – Fortner-Wood)

Longevity in the Blue Zones

The topic for this research paper focuses on the benefiting factors that contribute to longevity in the Blue Zones areas as opposed to the lifespan shortage in U.S. The main question being asked here is how can life in the Blue Zones contribute to longevity in the U.S? To support this evidence, there will be three disciplines being used for researching areas on this topic of discussion. Those disciplines include psychology, anthropology, and nutrition; all of which make up the key to successful aging. The use of nutrition as a discipline will help with finding out what the centenarians' diet looks like and whether they exercise or not. Next, psychology will view this topic from a mental standpoint while also pertaining to the emotional well-being of the person. And lastly, anthropology will execute in finding out the difference of lifestyles and cultural beliefs that aid in the longevity of these targeted Blue Zone areas. All these disciplines will piece together in finding the most important reasons for successful aging. Therefore, the Blue Zones give insight into how to maintain longevity such as dieting well, creating a healthy mindset, and balancing a healthy lifestyle.

Elani Payne

Mentor:
Ginger Williams, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Interdisciplinary Studies

(IDVS 490 - Williams)

Caffeine and Its Effect on Athletic Performance

Caffeine is a part of many people's daily morning routines whether that be as coffee, tea, energy drinks, or some other type of caffeinated beverage to get their day started. However, not everyone that is consuming caffeine may know the effects that it is having on the body. Athletes have busy schedules to fit in training along with other activities every single day and will often use caffeine as an energy source. However, many athletes do not understand how caffeine is affecting their athletic performance. Athletes' consumption of caffeine can have both negative and positive effects on the body. It can cause an increase in power output and performance but can also cause negative physiological effects on the body. An example of a negative physiological effect caffeine has on the body is an increase in blood pressure. This can make it dangerous for the athlete if they already have elevated blood pressure. It can also negatively impact the body by causing insomnia, anxiety, and mood disorders. Caffeine can have a positive impact on performance by increasing jump performance and overall power output. In some instances, it was found to decrease times in endurance exercise tests and decrease RPE which allowed athletes to perform better. This presentation will evaluate the positive and negative effects caffeine has on performance to help athletes develop a better understanding of how caffeine affects their athletic performance.

Haley Prosser

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(PESH 381- Wojcik)

“Unsex Me Here”: The Animus Possession of Lady Macbeth

Most previous Jungian studies of Lady Macbeth's psyche overlook her position as an autonomous character, viewing her, for example, as a mere projection of Macbeth's anima. Feminist critics analyze both characters equally, but their argument lacks C. G. Jung's helpful terminology. This essay uses her words and actions to argue that individuation eludes her because she has been possessed by the animus archetype (women's inner masculine principle and a bridge to the unconscious). By attempting to compensate for her husband's feminine nature, Lady Macbeth is possessed by what she thinks a man should be – brutal, unemotional, fierce. Her hardened concept of masculinity and her openness to the demonic masculine ultimately lead to her death. While her animus possession helps Lady Macbeth put Macbeth on the throne, the suppression of her true self is the hamartia in her personal tragedy.

Emmalynne Eshleman

Mentor:
Matthew Fike, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – English

(ENGL 305 – Fike)

The Positive Impacts of the Covid-19 Lockdown on Students

The COVID-19 pandemic and lockdowns had made many negative impacts on individuals and society. Little research has been done about any possible positive effects the lockdown could have had. However, that does not mean there were only negatives during this time as seen by all the positives that happened for the environment and health in particular. College students were a group that had dealt with many changes, both good and bad. The sudden change to their lives had caused a great deal of mental strain, but there is a possibility that this time had opened students to new opportunities. This study has a focus on college students during the lockdowns. The goal is to investigate if there were any possible positive effects of the lockdowns on students. There will also be a deeper look into the correlation between the grade level of the student and the different aspects we are exploring through this study.

Lucas Dupuy

Mentor:
Duha Hamed, Ph.D.

Southeastern Association of Educational Opportunity Program Personnel (SAEOPP) McNair Conference, Virtual, June 2021; Winthrop McNair Research Symposium, Winthrop University, Rock Hill SC, June 2021; & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by TRIO grant from the U.S. Department of Education, Winthrop University, 2021

CAS – Mathematics

(MCNR 302 – Fortner-Wood)

Drug Related Deaths: The Impact of the Economy

In 2019 alone, the CDC reported over 70,000 drug overdose related deaths in the United States. While mental health can play a large part in the likelihood of an individual to suffer from an overdose, there are also different economic factors at play that can have an impact. This paper will analyze the relationship between drug related deaths with significant economic variables, such as state level unemployment rates, state level GDP, and state level educational attainment in effort to understand more about the correlation between economic elements and drug related deaths.

Lauren Mosier

Mentor:
Danke Tarabar, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CBA - Accounting, Finance & Economics

(ECON 306 – Tarabar)

Attraction and Retention of Low-Income Workers: A Study on Employee Perspectives

The purpose of this study is to understand how employers attract and retain employees at different wage levels throughout the organization. We also aim to understand how wage is related to employee satisfaction and loyalty. Using a quantitative survey methodology sampling full-time workers at different income levels, we tested hypotheses regarding relationships between income level, employee's satisfaction with their managers, employee values, and whether employees feel appreciated by their employer. Our study uses previous literature and current survey data to examine the influences of different organizational factors and whether they affect employees' retention in low-income jobs. Data will be analyzed using descriptive statistics, correlation, and regression analysis. Although data collection is still underway, the results of this study have the potential to inform business practices around employee attraction and retention, and its relationship with income level. With the current state of the labor market, and more employees resigning for different opportunities, our results can shape organizational policy aimed at retention, and help employees find more fulfilling employment.

Joshua Burns, Willis Rogers, Victoria Wilson, & Libby Roush

Mentor:
Melissa Carsten, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CBA - Management & Marketing

(BADM 391 – Carsten)

Examining the Effects of Early Sport Specialization in Youth Sports

Early sport specialization, otherwise known as ESS, can be described as intense training in a specialized sport younger than 12 years of age. Children focus on one sport, specifically in a competitive manner and usually never change sports. We see this in Olympic athletes, for example, who were good in their field as a child and their parents made them stay with that sport. While early specialization in youth sports can provide children with the tools necessary to strive, it can also hinder them in other areas. Children may develop anger and aggression issues. It may also impact their mental health overall. Many parents and professionals tend to overlook the risks that come with early specialization because they want the children to be the best or play professionally. Intense competition teaches children to view everything as a challenge which can cause them to act out against their peers. Children may learn how to work as a team, but at the same time may feel immense pressure to be the best. They are also at risk for severe childhood injuries. This presentation will examine and discuss the effects, good and bad, of early specialization in a variety of youth sports.

Tavia Sartor

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(PESH 381 – Wojcik)

Isolation and Characterization of Novel Bacteriophages at Winthrop University

In the fall of 2021, Winthrop University students discovered and characterized eight phages as part of the SEA-PHAGES program, led by the Howard Hughes Medical Institute and Dr. Graham Hatfull at the University of Pittsburgh. The goal of the SEA-PHAGES program is to isolate and characterize soil bacteriophages. Each student in the course isolated, purified, and characterized a bacteriophage using host bacteria *Mycobacterium smegmatis*. Soil samples were collected on the Winthrop University campus, and then amplified using enriched or direct isolation. Purification was performed to ensure a well-isolated sample. Amplification strategies were employed to increase the viral titers. DNA was extracted and characterized using restriction enzymes and gel electrophoresis to evaluate unique patterns. Transmission electron microscopy was used to determine phage morphology and size. Bacteriophages Virgeve, Fimgent, Yorick, Galaga, Purah, Stay, Mazikeen, and Mikro were described. All were Siphoviridae morphology with the exception of Stay and Mikro, Winthrop's first two Myoviridae phages. Based on restriction digest results, three phage DNA samples were sent to the University of Pittsburgh for sequencing. Virgeve was determined to be a B1 cluster, while Yorick was an F1; both of these phages contain 101 potential genes. Mikro was found to be a C1 cluster with 225 potential genes. Annotation of these genomes is currently in progress and the results will be published in NCBI's GenBank.

**Ryan Harris,
Emi Umemoto,
Brooke Jewell,
Kaylee Mills,
Jessica Morgan,
& Jada Fogle**

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

SEA Symposium, Virtual,
April 2022; Annual
Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

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

CAS – Biology

(BIOL 270 –
Frost & Westover)

What Employee Factors/Demographic Variables are Perceived to have Influence over the Opportunity of Promotion.

The purpose of this study is to understand the workers' perceptions of what impacts promotion potential in the workplace. The study highlights how these perceived factors can influence organizational performance. Using a quantitative survey methodology sampling full and part time employees within the age range of 25-50, we tested hypotheses regarding age, socioeconomic background, gender, amount of time working for a company, an employee's remote status and marital status to figure out what factors are considered to influence promotion potential. We hypothesize that characteristics such as marital status and previous education will have a greater impact on promotion potential than an employee's location. We also hypothesize that as age increases, the potential for promotion decreases. Data will be analyzed using descriptive statistics, correlation, and regression analysis. Although data collection is still underway, the results of this study have the potential to inform business practices related to perceptions of promotion fairness in organizations, as well as how employees perceive promotion opportunities. With the current state of the labor market and the increased ability to pursue other job opportunities our results have the potential to help businesses and employees better utilize promotion opportunities in organizations.

**Nicolas Casale,
Sarah Grooms,
Hannah Justice,
Betttchina Duvillage,
& Sophia Colt**

Mentors:
Melissa Carsten, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CBA – Management &
Marketing

(BADM 391 – Carsten)

Annotation of Mikro, Virgeve, and Yorick

In the Spring of 2022, Winthrop undergraduate students annotated the genomes of three bacteriophages; Virgeve, Yorick, and Mikro during the second part of the SEA-PHAGES program. This initiative is led by the Howard Hughes Medical Institute. Virgeve is a B1 cluster phage with 101 putative genes. Mikro is a C1 cluster phage with 255 putative genes. Yorick is Winthrop's first F1 cluster phage with 104 putative genes. Virgeve's genome contains largely forward coding genes while the latter portion of the genome contains reverse coding genes. In comparison, Mikro has very few reverse-coding genes and many tRNAs which the other two don't contain. To fully annotate (identify genome location and possible gene function), we used a variety of bioinformatics techniques involving the analysis of patterns within biological data. Software programs such as DNAMaster, Phamerator, NCBI Protein Blast, HHPred, Glimmer, and GeneMark were used to evaluate our genes to other published phages. We checked start sites, alignment percentages, and gap size between putative genes. Innumerable bacteriophage genes have no known function, so data collected serves to further our understanding of genetics and evolution. In a future third semester course, the students will participate in SEA-GENES, where they will further investigate the function of annotated genes in the laboratory using advanced molecular, genetic and microbiological techniques. The collective results allow further understanding of the co-evolutionary relationships of bacterial hosts and their bacteriophage pathogens.

**Jessica Morgan,
Brooke Jewell,
Kaylee Mills,
Ryan Harris,
Emi Umemoto,
Precious Tompson,
& Jada Fogle**

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

SEA Symposium, Virtual,
April 2022; Annual
Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

Supported by HHMI
SEA-PHAGES Program

CAS – Biology

(BIOL 271 – Westover)

What kinds of jobs, in terms of Online, Hybrid, and In-person work styles, are current Sophomores, Juniors, and Seniors, looking for upon entering the workforce?

The purpose of this study is to understand what kinds of jobs current freshmen, sophomores, juniors, and seniors are looking for upon entering the workforce in terms of online, hybrid, and in-person jobs. Using a quantitative survey methodology sampling Winthrop College students, we tested hypotheses regarding preferred working location based on their adjustment to virtual work, the amount of flexibility and work-life balance they felt while doing virtual work, and their need for social interaction while working. We also sought to understand whether demographic variables such as age, major, race, gender and potential industry of work affect desired working conditions. These demographics will allow us to separate the data into different subfields that can help us understand our results. Data will be analyzed using descriptive statistics, correlation, and regression analysis. Although data collection is still underway, the results of this study have the potential to inform business practices around whether having dedicated office spaces is still necessary. The results of this survey also have the potential to help businesses focus their resources towards creating desirable work arrangements and allow us to understand the best modalities for future work practices.

**Antonio Florence,
Marvin Brooks,
Hunter Christopher,
Darrin Davis,
& Jason Shepherd**

Mentors:
Melissa Carsten, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CBA – Accounting,
Finance, & Economics

(BADM 391 – Carsten)

What jobs are Winthrop College of Business Students Searching for?

The purpose of this study is to understand what jobs Winthrop college students are looking for upon entering the workforce. Using a quantitative survey methodology sampling students from Winthrop college of business, we tested hypotheses regarding the determinants of choosing hybrid jobs, in person jobs, or a hybrid work situation. Data will be analyzed using descriptive statistics, correction, and regression analysis. Although data collection is still underway, the results of this study have the potential to inform business practices around what college students are looking for and allow us to understand the wants and needs of potential employees.

**Ke'Aundra Benjamin,
Bre Lamb-Meggett,
Ryan Rabon,
Shatoria Brantley,
& Zaniah Brown**

Mentor:
Melissa Carsten, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CBA – Accounting, Finance, & Economics

(BADM 391 – Carsten)

Comparison of VO2max Between Smokers/Vapers and Non-Smokers/Non-Vapers

VO2max is defined as the maximum amount of oxygen that our body can take in and use during exercise. Due to the popularity of vaping and high smoking rates in college-aged adults, it is important to analyze and evaluate how these factors affect the VO2max of those individuals that engage in smoking/vaping with those that do not. Subject criteria will include being between the ages of 18 and 26 and must be enrolled at Winthrop University, with four of the eight individuals smoking/vaping. Variables measured during this study include heartrate, distance, and VO2max. To measure these variables, we will be administering the Cooper 12-Minute Run/Walk test, which is a maximal test, on a treadmill in the lab, taking heartrate at several intervals before, during, and after the test. The results of our study indicated that the individuals who smoked/vaped had a slightly higher average VO2max score (37.86 ml/kg/min) than the non-smokers/non-vapers (34.86 ml/kg/min). Heartrate was similar between the two groups, however, the non-smokers/non-vapers group were able to get closer to their average predicted heartrate max than the vapers/smokers. The smokers/vapers ran a further distance than the non-smokers/non-vapers. Though our hypothesis was not supported by our results, the results obtained indicated that there is a decreased aerobic fitness level among our participants. Based on the findings of our study, it is our hope that we can encourage college students, whether they smoke/vape or do not smoke/vape, to regularly engage in physical activity in order to improve their overall physical fitness.

**Bethany Golden,
Tim Antolick,
& Madison Lapham**

Mentor:
Jennifer Bossi, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

The Status of Welfare and the Reduction of Poverty Across the United States

In America, there is a confusion of purpose when it comes to welfare: is welfare supposed to alleviate poverty or make it comfortable? Critics of more generous welfare programs accuse these policies of encouraging poverty and the causes of poverty, such as by allowing extended periods of unemployment, or of encouraging single motherhood. What is the reality? This study was designed to compare welfare across states, comparing welfare spending with subsequent increases and decreases in poverty to discover whether there was any impact, and in what direction. Using national census data from 1970-2019 and state level data from 1980-2019, I compared year-by-year welfare spending as a percentage of national GDP with the change in poverty rate between that year and two years later. We did this on a national level, as well as with individual analyses of Texas, California, Wisconsin, Rhode Island, and South Carolina. I found that higher spending was correlated with increases in poverty two years later. While correlations were not particularly strong, taking into account the myriad of potentially confounding variables, that correlation exists at all is notable, especially seeing as it all trends in the same direction given the case studies observed, with the exception of Rhode Island. Given both the quantitative and qualitative circumstances of these welfare systems, those which prioritized bringing individuals and families to economic independence and which held higher standards for receiving welfare produce lower poverty rates over time but may suffer more severely during economic recessions.

R. Wes Thomas

Mentor:
Hye-Sung Kim, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Political Science

(PLSC 305 – Kim)

The Effects of COVID-19 on Employees' Ability to Work from Home

The purpose of this study is to understand the impact that COVID-19 has had on society's ability to work from home. We also wish to understand the overall impact remote work has had on the well-being of employees based on their personal experiences with remote work. Using a quantitative survey methodology sampling 64 employees over the age of 18, working in a variety of fields, we have hypothesized that working remotely can reduce stress, reduce the costs associated with working, and provide employees with a more flexible personal schedule. Data will be analyzed using descriptive statistics including Chi-Squared, correlation, and regression analysis. These methods of analysis will help us better grasp the overall sentiment of employees who work from home. Although data collection is still underway, the results of this study have the potential to inform business practices around the successful implementation of remote work and allow us to understand what aspects of remote work are important to employees. It is important for businesses to understand what elements of remote work are important to their employees and gain a better idea of how to support their employees. Learning how to adapt to remote work is becoming increasingly important because current trends indicate that returning to 'pre-COVID-19' methods of work may not be profitable.

**Sam Jones,
Kierre Mungin,
Shayla Sims,
& Ciara Miller**

Mentor:
Melissa Carsten, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CBA – Management & Marketing

(BADM 391 – Carsten)

The Bold Character of Ellen Olenska that Old New York was too Scared to Face

Edith Wharton's 1920 novel *The Age of Innocence* follows a young gentleman named Newland Archer who struggles to find his identity in Old New York after meeting the confident, daring Countess Ellen Olenska. Ellen's liberal personality doesn't reflect the traditional values of Old New York, and although she's in their community, she's not accepted by them. Most critical essays focus on how Wharton uses different literary devices to examine the portrayal of society and gender in *The Age of Innocence*, but I believe it's important to dive deeper and specifically analyze how Old New York battles Ellen. In this essay, I argue that Ellen doesn't need Old New York because they were too afraid to face and admit that her boldness is what they needed in order to have a future. Through Wharton's language, it becomes evident that Old New York disapproves of Ellen, particularly of her gender and personality, and pushes her away because they fear she'll end their traditions. But what Old New York fails to comprehend is that she can give them a future. Yet even after everything that Old New York does to Ellen, she's able to realize in the end that they will never give her what she truly needs: a community that will love and embrace her for who she is.

Courtney Hatcher

Mentor:
Leslie Bickford, Ph.D.

Winthrop University
English Department
Undergraduate/
Graduate Research
Conference, Virtual,
March 2022

CAS – English

(ENGL 300 – Bickford)

How Does Social Media Affect Job Satisfaction and Morale of Workers?

The purpose of this study is to understand the effect that social media has on people's concentration, performance, and productivity in the workplace. Using a quantitative survey methodology sampling college faculty, students, and the general public over the age of 18, we tested hypotheses regarding social media having a positive effect on job satisfaction and worker morale and whether social media affects younger users differently than older users. We also investigate whether social media use for entertainment versus work purposes affects people differently. Data will be analyzed using descriptive statistics, correlation, and regression analysis. Thus far, there are peer-reviewed academic sources that support the idea of social media having a positive effect on employees in terms of job satisfaction and worker morale, social media having more of an effect on the younger generations of workers than older generations, and different types of social media use affecting employees in different ways. The data that has been collected so far from the surveys, is also leaning in the direction of supporting our hypotheses, however, data collection is still underway. The results of this study have the potential to inform business practices around social media and how it is affecting employees in the workplace in terms of satisfaction and worker morale. This information allows employers to create better policies around social media in order to attract and retain top talent. It may also improve the perception employees currently have of their workplace.

R'Moni Jarvis, Tyler Belton, Bryson Perdue, & Satorian Mobley

Mentor:
Melissa Carsten, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CBA – Accounting,
Finance, & Economics

(BADM 391 – Carsten)

Who Are We?

As a student choreographer and dancer, I use movement to tell a story. For this story, I ask the questions: Who am I? Who are you? Who are we? How does one identify themselves? I take the audience on a journey of discovering who we are, the struggles of one's self-identity, and questioning one's sense of self and place in the world. This is something that everyone has faced in their lifetime and being in college, this is the time where many individuals struggle with their identities, including myself. I wanted to make this piece because it draws attention to a topic that often gets overlooked or is not addressed but happens to everyone at least one point in life. For this piece, I want to connect to my audience and the best way for me to do that is having my dancers connected to the piece. I had open discussions with my dancers about who they are, and what are some things they are struggling with. I also had them look in the mirror and tell me what they saw: What do you see when you look in the mirror? Are you happy with what you see staring back at you? The movement displayed is more pedestrian like with different gestures and the use of repetition. From these conversations, I use what they say as well as their body language to create abstract movement and manipulate the human body to convey a message.

Jala Smith

Mentor:
Kelly Ozust, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CVPA – Theatre & Dance

(DANT 301 – Ozust)

Using RYBP Expression to Suppress GBM Cell Viability

Glioblastoma multiforme (GBM) is an aggressive and rare type of malignant tumor of the brain and has a survival rate of 22% in younger patients and 6% in older patients, once diagnosed. While these tumors can affect younger patients, it is more common for them to occur in patients ages 45 to 70. GBMs arise from astrocytes, a type of glial cell that supports neurons and participates in forming the blood-brain barrier. Glioblastomas are particularly difficult to treat due to the formation of microscopic outgrowths that burrow deep into nearby healthy tissue. Due to these outgrowths, regular cancer treatments like chemotherapy, radiation therapy, and surgery are not very effective ways to actively treat GBM. Thus, we sought to investigate epigenetic networks that mediate GBM progression. We measured the difference in cell viability resulting from forced RYBP expression. RYBP is a Polycomb group protein necessary for transcriptional repression and regulation of cell growth. We transfected U-87 and U-118 GBM cell lines with an RYBP expressing plasmid and measured differences in cell viability and apoptosis, or cell death, compared to control cells that were transfected with an empty vector. RYBP expression was confirmed by Western blot. Cell viability was measured with a Trypan blue exclusion assay and the activation of apoptosis was detected by measuring the levels of cleaved caspases in transfected U-87 and U-118 cells.

Daniela Torricos & Alex Lee

Mentor:
Daniel Stovall, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

Supported by SC INBRE
DRP 5P20GM103499-21

CAS – Biology

Characterization of Microplastic Abundance in Carolina Beach Sands

Microplastics are small (<5mm) plastic particles that are ubiquitous throughout the environment and pose a threat to life. They are common to marine environments and numerous studies have described the concentrations of microplastics in beach sands. Beach renourishment is a common practice in areas subject to tourism and heavy erosion, yet not much is known about how the displacement of sand impacts microplastic concentrations. Since beach renourishment is common along the east coast of the United States, samples were collected from 8 beaches in North and South Carolina, to test for trends in microplastic abundance and time since renourishment. Each beach consisted of three samples of approximately 500 g that were collected from three zones: the dunes, high tide line, and intertidal zone. Because methods for extracting microplastics in beach sands are variable, sample preparation was duplicated and variation between iterations was characterized. Microplastic particles and fibers were abundant in every sample and the plastics were very small, averaging just over 100 µm in width. From these data we find no clear correlation between microplastic abundance and time since beach renourishment.

Aubrey Leszczak

Mentor:
Diana Boyer, Ph.D.

Summer Undergraduate Research Experience Symposium (SURE), Winthrop University, Rock Hill, SC, October 2021

Supported by SC EPSCoR: MADE in SC, NSF #1655740

CAS – Interdisciplinary Studies

(GEOL 551 – Boyer)

Bird community structure in shrublands and evergreen forests in Utah

Temperatures are predicted to continue to rise due to increasing concentrations of greenhouse gases in the atmosphere, and increasing temperature can cause a shift in species distributions toward higher latitudes and elevations. We downloaded the National Ecological Observatory Network (NEON) breeding landbird point counts data for the Moab, Utah field site. We investigated species richness (number of species) and diversity (which accounts for richness and relative abundance of species) of the bird community in shrubland and evergreen forest habitats from 2015 to 2020. Shrublands are dominated by perennial shrubs and grasses and occur at lower elevations, while evergreen forests are dominated by coniferous trees and occur at higher elevations. Overall, bird species richness and diversity were higher in the evergreen forest than in the shrubland habitat, likely due to greater vertical heterogeneity creating multiple niches in evergreen forests. In shrublands, species richness of birds differed among years, but there was no difference in bird diversity among years. In contrast, in evergreen forests, species richness of birds did not differ among years, while diversity differed among years. Temperature at the study sites varied among years, but there was no relationship between temperature and species richness or diversity in shrublands. Our results suggest that factors other than temperature, such as resource availability, may have a larger impact on variation in bird community structure than global warming, but further research is needed to understand how temperature interacts with biotic and abiotic factors to affect bird communities.

Abigail Greene

Mentor:
Jennifer Schafer, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Biology

(BIOL 371 – Schafer)

Effects of Oncogenic MicroRNA on RYBP Expression in Glioblastoma Cells

Glioblastoma multiforme (GBM) is a grade IV malignant tumor of the nervous system. GBMs are primarily cancers of astrocytes, a type of glial cell responsible for axon guidance and synaptic support. Due to a low survival rate and limited, invasive treatment options, the development of targeted therapeutics that address the underlying molecular pathology of GBM is urgently needed. RYBP (RING1- and YY1-binding protein) is a type of Polycomb protein that is downregulated in about 50% of GBM patients, and it behaves as a tumor suppressor in multiple cancers (including lung, breast, and esophageal, among others). Thus, we wondered how GBM cells downregulate RYBP. MicroRNAs are short non-coding RNAs that bind to the 3' untranslated region (UTR) of complementary mRNA transcripts. MicroRNA binding to an mRNA inhibits protein synthesis. We analyzed the 3' UTR of RYBP using online prediction software and identified putative binding sites for miR-9-5p, miR-125b-5p, and miR-128-3p. We thus hypothesized that by inhibiting miR-9, 125, and 128 in GBM cells, RYBP expression would be restored. We transfected specific miRNA inhibitors into U-87 cells and isolated total protein after 24 hours. Total protein was then quantified using a Modified Lowry assay and analyzed by SDS-PAGE and Western blot. However, we did not detect RYBP protein expression when cells were treated with any miRNA inhibitor or negative control. Therefore, we cannot conclude that miR-9, 125, or 128 directly regulate RYBP in U-87 GBM cells.

Mason Linker

Mentor:
Daniel Stovall, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by Winthrop Research Council Grant SC21011, the SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM103499) & SC INBRE DRP 5P20GM103499-21

CAS – Biology

Diagnosing and Treating Symptomatic Accessory Naviculars

There is an extra bone that some people have called the accessory navicular. The accessory navicular is located on the inside of the navicular bone, which is in the arch area of the foot. It is an issue because it disrupts the attachment of the posterior tibial tendon into the insertion point on the navicular, which is in the arch area of the foot. There are three types, with Type II being the most common. Many people who have an accessory navicular do not know that they have it until they become symptomatic, either through an acute injury or overuse. There are multiple treatment options ranging from non-surgical and conservative, like physical therapy, to complete excision of the extra bone and reinserting the posterior tibial tendon. The most common surgical procedure is called the Kidner procedure, but this can also be modified to fit the patient's specific needs. The accessory navicular is hard to see in diagnostic imaging due to the small size and the location. Accessory naviculars also have an undetermined relationship with flat foot, which can exacerbate the symptoms of a painful accessory navicular. This bone affects a small percentage of people, but recurrent foot pain is a hindrance for daily life and exercise. This research looks at reducing that pain. This presentation discusses the diagnosing and treatment of a symptomatic accessory navicular.

Katie Weber

Mentor: Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(PESH 381 – Wojcik)

Methods to Relieve Pre-Performance Anxiety in Female Collegiate Athletes

In the running community, specifically female collegiate distance runners, there is a stigma around mental health. Many coaches and even athletes downplay these illnesses or completely disregard them as a whole. Mental health and physical health go hand in hand and are equally important. This presentation will explore the relationship between pre-performance anxiety and athletic performance. This presentation will discuss the impacts of not addressing these illnesses and how to prevent them. One of the most common stigmas is pre-performance anxiety. Many people assume that when someone is at the top, nothing can shake them. By putting an emphasis on educating, valuing, and implementing resources, this will benefit female collegiate athletes in relieving pre-performance anxiety.

Sidney Jenkins

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(PESH 381 – Wojcik)

Vitamin B12 Deficiency and its effects

Vitamin B12 is responsible for many things. Because it serves such an important role in the human body, it is important for it not to be overlooked. With vegetarianism and veganism becoming more popular it may be necessary to inform them that their consumption of vitamin B12 is important, so they do not develop these hazardous conditions. People with type 2 diabetes are also at risk due to the medication that they are prescribed. Some medications have been found to inhibit the absorption process of vitamin B12 which unknowingly can make someone deficient. Specifically, there are multiple articles that have found diseases that develop caused by a deficiency in this vitamin. There have been recent discoveries that the deficiency has been causing skin and neurological degenerations. Although these articles state that this is a rare condition that develops over the course of years not consuming enough B12 this could potentially become a severe issue.

Nicole Weiss

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(PESH 381 – Wojcik)

On The Hunt For Eggert's Sunflower in South Carolina

Helianthus eggertii commonly known as Eggert's Sunflower is a rare species of the Asteraceae family. It was previously identified in the Rock Hill, SC area. The findings of *Helianthus eggertii* in the Rock Hill area suggests the species is distributed across a broader range than originally discovered in the states of Kentucky, Tennessee, and Alabama. The primary habitat of *Helianthus eggertii* is areas of poor soil quality, open barrens, and under power lines where competition is low. Locations previously inhabited by *Helianthus eggertii* were reexamined in 2021 during late fall, and no populations remained in those locations due to competition with native vegetation and new development. In year 2022, we plan to conduct a plant survey with a broader range and will start looking for the species much earlier than last year. We will focus our search around Rock Hill area. Our goal aims to monitor populations and formulate methods to preserve Eggert's sunflower. This work is vital toward the efforts of preserving Eggert's sunflower populations in South Carolina.

Thomas Harder & Zack Taylor

Mentor:
Kunsiri Grubbs, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM103499)

CAS – Biology

Reducing Substance Abuse and Mental Illness Among the Homeless Population

Currently in the United States over 630,000 people are homeless and 100 million homeless people worldwide. Homelessness is a social, economic, and health issue typically affecting single, middle-aged men who are members of a minority group. Among these groups of homeless individuals 37% have families, 25% suffer from a mental illness, 13% are homeless due to domestic violence, 12% are veterans, and over 20% are children. In addition, 35% of homeless people have, or had a substance abuse issue, with over 80% of them experiencing lifelong alcohol and drug problems. Nearly 50% of homeless people self-medicate which often decreases their mental and physical health. In addition, the homeless community is vulnerable and often perceived as violent, but in fact the homeless are of the victims of attack and face challenges such as lacking personal shelter, warmth, and safety, as well as enduring medical and sleep problems, lugging all of their possessions with them, which is liable to be stolen, lack of personal hygiene, difficulty obtaining food, and low employment opportunities. My research question is what is the best way to treat drug addiction and mental illness within the homeless population to reduce drug usage and mental disorders in the homeless community? The three disciplines that I have chosen for this research is Public Health, Sociology, and Psychology. My thesis is in order to reduce homelessness we must reduce substance abuse, treat mental illness, reconstruct treatment programs, offer greater support after patients complete treatment, and provide adequate protection towards the homeless community.

Jemia Wiggins

Mentor:
Ginger Williams, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Interdisciplinary Studies

(IDVS 490 – Williams)

Student Mental Health during the Covid-19 Pandemic: Comparison of 2021 and 2022 Data

Mental health concerns have increased in the general population recently as the world has grappled with Covid-19. College students have also faced increased mental health problems. 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 the relationship between mental health, perceived stressors, optimism, and perceived support. We collected data in a two-week period in the spring of 2021 (n = 69) and again in the same two-week period in the spring of 2022 (n = 62). While the number of positive screens for moderate to severe depression remained relatively stable from 2021 to 2022, significantly more students screened positive for moderate to severe anxiety in the 2022 sample (71.0%) compared to the 2021 sample (53.6%). In both samples, higher depression and anxiety scores were related to lower optimism, lower coping self-efficacy, and greater number of perceived stressors related to Covid-19. Additional variables that were related to higher depression and/or anxiety in at least one of the samples are also presented. Comparing data across the two samples, the 2022 sample rated their stress about politics to be significantly lower compared to the 2021 sample; however, the 2022 sample had a higher mean rating for the negative effect of Covid-19 on their family's health. While correlational in nature, these preliminary findings suggest that efforts to increase optimism and coping-self-efficacy are warranted. Efforts to improve mental health are sorely needed.

**Autumn Hennis,
Allayna Weber,
Aaron Gigliotti,
& Mandy Breakfield**

Mentor:
Sarah Reiland, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Psychology

A Mutually Beneficial Relationship: How Religion Relates to Conservatism

Conservatism and religion are interrelated, but how so? I argue that the two are related (1) through a shared tradition and culture, (2) in terms of the church being an institution protected by conservatives as defenders of longstanding social institutions, and (3) in light of how religion has played a role in cultivating objective morality within conservatism as a movement. This analysis is framed by two strands of conservatism that are often in tension: libertarianism and conservatism. Libertarianism is close to classical liberalism, in the vein of Milton Friedman, while traditionalism, as articulated by thinkers such as Edmund Burke and Allan Bloom, is predicated on building and perpetuating the social institutions that cultivate individual virtue and nobility. I argue for the mutually beneficial relationship of religion and conservatism, particularly as it might revitalize conservatism as a guiding principle for the Republican Party. I assert that the contemporary GOP has fallen away from traditionalist ideals, but that the embodiment of once-held religious beliefs by GOP members, if reinstated, could revitalize the party's conservative aspirations by chastening the party's drift toward the libertarian pole of the conservative movement.

Nathaniel Willey

Mentor:
Michael Lipscomb, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Political Science

(PLSC 353 – Lipscomb)

Gifted Education After Brown v. Board of Education

We often think that after the ruling of Brown v. Board of Education (1954), that education was completely equal, but in this paper, I am examining the persistent struggles that African American students face today to receive gifted education accommodations. By examining the struggles of African American students today, I am clarifying the relationship between the Civil Rights Movement that happened in the 1950s and the current inequalities in public schools involving African American children. My research is a compilation of quantitative analysis of national data and secondary sources. This paper challenges the thought that once Brown v. Board of Education (1954) was passed that everything would evolve to be equal. African American students in the United States are still be denied testing for gifted and talented programs, being misidentified for having a disability due to exhibiting gifted qualities as an affect of lingering racial stereotypes and are likely to be placed in inaccessible gifted facilities in predominantly white areas. By promoting school accountability, diversity training, gifted education certification, and upholding the Brown v. Board of Education (1954) decision, African American students could finally start to receive the quality of education they deserve.

Madison Bray

Mentors:
Brandon
Ranallo-Benavidez, Ph.D.
& O. Jennifer
Dixon-McKnight, Ph.D.

CAS – History

(HIST 302 –
Dixon-McKnight)

Predicting Economic Conservatism through measures of Deference to Prestige and Exploitive Motives

Ideology researchers have shown that Social Dominance Orientation (SDO) predicts economic conservatism. The present study draws on Schwartz Value Theory (SVT) to identify other potential predictors related to power and achievement. Based on studies showing deference to luxury symbols and distinctions between dominance and prestige hierarchies, we posit that individuals might vary in their tendency to defer to prestigious or wealthy individuals; therefore, we examine two measures of deference to prestige (DTP). Additionally, given research suggesting SDO reflects an exploitive motive, we also examine exploitive motives as potential predictors of economic conservatism, specifically sadism, psychopathy, and Machiavellianism. Economic conservatism was measured with a 10-item scale focused on issues related to redistribution and government intervention in the economy (e.g., raising taxes on the wealthy, raising the minimum wage, and welfare). DTP was operationalized as deference to the wealthy for expertise and "great-man" attributions for financial success, and exploitive motives were assessed through measures of sadism, psychopathology, and Machiavellianism. Hierarchical regression determined that both DTP measures accounted for variance in economic conservatism left unexplained by SDO. No exploitive motives were found to predict economic conservatism; however, sadism emerged, contrary to our hypothesis, as a weak negative predictor.

Josie Chestnut

Mentor:
Jeff Sinn, Ph.D.
& Cheryl Fortner-Wood, Ph.D.

Southeastern Association of Educational Opportunity Program Personnel (SAEOPP) McNair Conference, Virtual, June 2021; Winthrop McNair Research Symposium, Winthrop University, Rock Hill SC, June 2021

CAS – Psychology

(MCNR 300 – Fortner-Wood)

Dissociative Identity Disorder: The Media and Malingering

Dissociative Identity Disorder (DID) is defined by the Diagnostic and Statistical Manual of Mental Disorders as “disruption of identity characterized by two or more distinct personality states, which may be described in some cultures as an experience of possession.” A recent slew of social media and forum posts on sites like TikTok, with popular hashtags “#didfaker” and “#didfaking”, and Reddit, with a forum titled “r/fakedisordercringe” (208k members and counting) have been produced declaring the existence of a booming community of individuals fabricating presentation of the illness. Interests in DID will be examined in order to take a professional approach to these claims, exploring the disorder as a potential “diagnostic fad” through the use of Google Trends software. While physical ailments are often easy to diagnose due to visible symptoms, mental illnesses often lack the same hard evidence, making cases of malingering or subconscious imitation more difficult to discern. Incidence of or malingering of DID could be on the rise for any number of reasons, if on the rise at all. The four variables examined in the present research are popular media, academic interest, general interest, and possession interest (interest in having DID). I posit that popular media will produce a rise in general interest in DID, which will, in turn, produce a rise in possession interest, and that academic interest will indeed rise, but independently of popular media, general interest, and possession interest.

Josie Chestnut

Mentor:
Darren Ritzer, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Psychology
(PSYC 302 – Ritzer)

The Ideological Shift of Conservatives on Government Spending

How does studying the evolving economic policy of political parties serve as an indicator to their overall ideological shifts? This paper explores that question by considering the actual economic policies pursued by Republican Presidential administrations considering their claims that they are the party of conservative economic principles. Conservatives have long championed decreased government spending, but it has not been reflected in their actions when in power. Especially in terms of economic assistance, conservatives seemed to have forgotten the idea of shrinking the deficit that they advocate, thus playing a part in the skyrocketing national debt that they promised to shrink. To give a broad overview, the debt as a whole has shifted drastically away from defense spending toward what would be considered more socially directed programs, which runs contrary to the conservative preferences typically espoused by the Republican Party. Most recently, President Trump signed into law a large COVID spending plan and wanted to pass an even larger plan, but he was unable to do so because Congress rejected it. In what world does a Republican president get upset with Congress because they will not spend more money? Unfortunately, this disconnect has become an ironic detriment for the Republican Party’s assertions of its conservative commitments, and it needs to be addressed to restore traditional conservative economic principles. This paper will provide evidence of this policy drift by Republican administrations and analyze why this discrepancy has emerged between the professed conservative economic ideology of the party and their actual policies.

Garrett Jackson

Mentor:
Michael Lipscomb, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Political Science
(PLSC 353 – Lipscomb)

Peers’ Perceptions of the Inclusion of Students with Intellectual Disabilities in the College Setting

The Higher Education Opportunity Act (HEOA) of 2008 provides access to funding for students with intellectual disability (ID) to attend postsecondary educational programs known as Comprehensive Transition Programs (CTP). There are over 311 colleges and universities that offer postsecondary programs to individuals with ID. Many of these programs include opportunities for students to take traditional courses, program-specific specialty courses, and employment-related internships. Most research on CTPs has focused on the perceptions of students enrolled in CTPs and their peer mentors. Research examining how undergraduate students across a campus community perceive CTP programs or notions of this kind of inclusive opportunity is limited. The purpose of this study was to answer the following research questions; (a) how aware are first-year undergraduate students of the CTP, including whether they have taken courses with students from the CTP?, (b) are there differences in perceptions of inclusion and course experiences among students who are aware that they took courses with students from the IPSP compared to those who had not or were unsure if they had taken courses with students from the IPSP?, and (c) what are the perceived benefits of and barriers to an inclusive post-secondary program on a university campus? Purposeful sampling was used to disseminate a 14-item anonymous survey to approximately 120 first-year students. This presentation provides an overview of the data collected from 36 initial respondents. Themes related to the benefits and barriers are presented in addition to research limitations and suggestions for future research.

Taylor Belue, Alex Jensen, Meadow Jacobson, & Tara Ann Goodwin

Mentors:
Larry Fisher, Ph.D.
& April Mustian, Ph.D.

41st American Council on Rural Special Education National Conference, Myrtle Beach, SC, March 2022 & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by Jack Holt Boger Faculty Development Endowment

COE – Counseling, Leadership, & Educational Studies

Functional Movement Training as a Method to Reduce Injury Among Police and Firefighter Personnel

Firefighter and police occupations demand a high level of physical ability and fitness to effectively execute their job. In some instances, police and firefighter physical requirements match that of the military and athletes. Such high physical demand creates an increased risk of injury, many of which mimic the injuries seen in the military and sports. Within firefighting and the police force, musculoskeletal injury (MSKI) has consistently been reported as a leading form of injury. Sprains and strains are prominently reported as the primary MSKI sustained, and the leading cause of injury is associated with activities involving squatting and lifting, or from experiencing a trip or fall. In the military and in athletes, functional movement screening (FMS) is frequently used to assess functional movement patterns and to determine asymmetries and movement dysfunctions which increase the risk of injury. FMS testing assesses mobility, stability, and advanced movements to find movement dysfunctions. Results are then used to develop both general and individualized corrective training programs to minimize the likelihood of injury. Despite its use in athletic and military populations, FMS is not regularly applied in firefighting or police departments, but the benefits noticed among the military suggest FMS testing and training may be a worthwhile introduction. Therefore, this article will investigate how the implementation of FMS testing and corrective training can be advantageous within firefighting and police departments to minimize the occurrence of injury among personnel.

Sean Green

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(PESH 381 – Wojcik)

Investigating Bacteriophage Genes Involved in the Defense of its Host

This work is driven by the recent data collected by Winthrop's SEA-GENES students. We now describe a phenotypic assay that can assess how a phage may express genes that defend its host against further infection. To achieve this, bacterial host *Mycobacterium smegmatis* was transformed with the pExTra plasmid, a vector that was assembled to contain individual genes of the K6 subcluster bacteriophage; Cain. High titer lysates from a variety of Winthrop's phage collection were spotted directly onto lawns of transformed *M. smegmatis*. Expression of individual Cain genes are induced and observed for a protective effect against host cell lysis during further phage attack. Ideally, Cain's homotypic defense abilities (superimmunity), can be observed in this way. However, despite repeated attempts to find a suitable temperature for the activity of both transformed host and phage Cain, superimmunity has been very difficult to test. Now, the defense assay focuses on bacteriophages outside of Cain's subcluster. Phages *ExplosiaNervosa* (A9), *Larva* (K5), and *Allegro* (B2) were used in numerous defense assays to observe heterotypic defense results, or the effect an individual Cain gene may have in protecting its host from unrelated bacteriophages. So far, several of Cain genes have been revealed to have no defensive effect. However, Cain 27 does appear to exhibit defense of the host cell against lysis by phage *ExplosiaNervosa*. Confirmation is underway to support this discovery with the goal of developing hypotheses on this and other Cain gene characteristics.

**Laela Walker,
Dallas Nivens,
& Bethany Wise**

Mentor:
Victoria Frost, Ph.D.

Summer Undergraduate Research Experience Symposium (SURE), Winthrop University, Rock Hill, SC, October 2021 & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM103499), HHMI and SEA-GENES

CAS – Biology

Genetic Analysis of Orthologous K Cluster Phages

Thousands of bacteriophages have been sequenced within the past few years, the majority due to efforts of students and faculty as part of the SEA Program of Research. Analysis of these phage genomes has highlighted a vast genetic diversity that can be influenced by phage lifestyle, bacterial host, and mosaicism due to extensive horizontal gene transfer events. Consequently, phages are organized into clusters based on a measure of the proportion of genes their genomes share. If two genomes share 35% or more gene content similarity (GCS) they are considered to be in the same cluster. This study takes a closer look at possible gene similarities between the K cluster phages Cain, Waterfoul, Hammy, Amelie, Pixie and Larva. All these phages share the same host (*Mycobacterium smegmatis*), are temperate, and have a GCS, when compared with Cain, of between 53% and 80%. Homology comparisons were conducted using several bioinformatics programs including Phamerator, BLASTp, and multiple sequence alignment tools ClustalW and GeneDoc. A number of genetic homologies were revealed across this cluster of phages, including between Cain gene gp55 and Waterfoul gene gp47. In parallel, evidence has shown that both of these gene products interact with Nus A; a protein known to be an important cellular transcription regulator in the host's proteome. As we move forward with phenotypic assays and protein-protein analysis of phage genes, homologous modelling can add to the increasing evidence that a number of genes within the same cluster have similar functions with evolutionary benefits towards phage fitness.

**Bethany Wise,
Dallas Nivens,
& Laela Walker**

Mentor:
Victoria Frost, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM103499), HHMI and SEA-GENES

CAS – Biology

Using a Bacterial 2-Hybrid Assay to Investigate Bacteriophage Gene Function

With up to 60% of bacteriophage genes having no predicted function, investigating gene characteristics could give novel insight into the role of these phage genes. In partnership with HHMI, Winthrop students have used a cytotoxicity assay to begin to characterize K cluster bacteriophage Cain's genes. The inhibition of host growth indicates that the phage protein is likely interacting with a host protein to affect the host cell. The bacterial 2 hybrid (B2H) assay builds on these results by investigating which host protein(s) is targeted by the tested phage gene product. As a newly introduced assay to the program, Winthrop was charged with piloting the consistency of this procedure in university labs. Cain gp55, was the first gene to be cloned into the B2H expression plasmid. With the help of inducible promoters and reporter genes, evidence has shown that the Cain gp55's expressed product interacts with mycobacterial Nus A; a protein known to be an important cellular transcription regulator. In our efforts to substantiate the B2H assay as consistent, we have tested a number of additional phage genes including Waterfoul gp47, Cain gp2, and Giles gp3. Since the most recent test with Giles gp3 yielded similar results to those at HHMI, we believe our B2H assay to be robust and ready to test more of Cain's genes. Continuing to investigate these protein-protein interactions will give us insight into how Cain infects its host, replicates, and possibly protects its host from further phage attack or infection.

**Dallas Nivens,
Laela Walker,
& Bethany Wise**

Mentor:
Victoria Frost, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM103499), HHMI and SEA-GENES

CAS – Biology

Changing Viewpoints of Post-Traumatic Stress Disorder in Veterans over the 20th-Century

The 20th century saw war and bloodshed unlike any other century. The world engaged in two world wars and the United States engaged in the Cold War with the Soviet Union which saw two hot wars in Vietnam and Korea. Yet, at the end of these wars, some of the soldiers did not seem to come back the way they left. They were different and experienced depression, anxiety, and would often relive the traumas of war. At first, they were thought of as crazy, but over the 20th century researchers from across different disciplines have come together to try and figure out what was happening to these veterans. The research attempts to answer the question: how have the 20th-century wars contributed to a better understanding of mental health, specifically post-traumatic stress disorder? To answer the question on how World War I, World War II, and Vietnam contributed to a better understanding of mental health and the creation of the diagnosis of post-traumatic stress disorder, the disciples of history, psychology, and sociology will come together to discuss PTSD vs. shell shock, the importance of social acknowledgment, and changes in the healthcare system.

Jordan Drewello

Mentor:
Ginger Williams, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Interdisciplinary Studies

(IDVS 490 – Williams)

The impact of global immigration on a nations GDP

Global immigration can be affected by multiple factors, including standards of living in both the origin and the destination country, job opportunities, poverty, and access to healthcare, to name just a few. Using panel data from over 100 countries GDP and international Migrant stock from the years 1990, 1995, 2000, 2005, 2010, 2015, and 2019, we examine empirically how immigration can affect economic (GDP) growth while also looking at how economic growth can affect global immigration. In our regression models, we control for unemployment, levels of political violence, percentage of population that with secondary education, and percentage of the population that have completed post-secondary education.

Jose Cervantes-Jimenez

Mentor:
Danko Tarabar, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CBA – Accounting, Finance, & Economics

(ECON 306 – Tarabar)

Project 2020: An Oral History

Project 2020 began as an Oral History Project conducted in Fall 2020 by Winthrop University graduate students in the Department of History. The goal was to conduct interviews that explored the various ways in which Americans were experiencing and being impacted by the various watershed moments that emerged during 2020 (the global pandemic, social unrest, financial challenges, issues with healthcare, etc.). The students in Dr. Dixon-McKnight's graduate class in the fall understood that they were living in a time of history and that it was important to capture it. Most often, we are unaware of those moments that will be historically noteworthy until they have already been a part of the past. The year 2020 is unique in that we were and are able to recognize its historic significance in the moment. Dr. Dixon-McKnight's students interviewed a wide range of folks exploring themes such as education, healthcare, essential workers, and Americans and their international experience in the midst of a worldwide pandemic). It is important to record as much of this history as we can while it is still fresh on the minds and in the hearts of those of us who have lived it. During the fall semester of 2021 and the spring semester of 2022, Dr. Dixon-McKnight and I have recorded interviews and experiences with multiple members of the Sun City community in Indian Land, South Carolina. During these interviews, we have met a wide variety of individuals who have shared their experiences and stories on the year 2020 and how they have molded into new beings since the pandemic. These experiences have been recorded and will be uploaded into the Louise Pettus Archives for individuals to learn more about the stories of the American people during the year of 2020. It is important to have these firsthand accounts of this critical moment in the nation's history. As research is being conducted on the subject, Winthrop University will be able to offer researchers and members of the community an abundance of information.

Michaela Bessinger

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – History

(IDVS 463 – Dixon-McKnight)

Contemporary Segregation within Schools in the South

Since the Brown v. Board of Education decision was made in 1954, there has been little progress within southern school systems in the United States and the issue of contemporary segregation. Today, one is able to see that schools within the south are faced with contemporary segregation due to the layers of issues that have yet to be fixed. In this research, we will review these issues that further progress contemporary segregation within school systems in the south. These issues will entail details about disproportionate funding, law-making officials and interpretational laws, skewed data sets that can hide segregation levels, and racial gerrymandering. My research question for this topic is how can we best break down contemporary segregation in schools within the south? While conducting this research, I have found that the greatest insights have come from the disciplines of History and Sociology. Within the research we find that there are several historians and sociologists who have noted that these issues are the key factors in regard to the furtherment of contemporary segregation in schools today. After conducting research, it can be concluded that disproportionate funding, law-making officials, and their laws all play roles in the furtherment of contemporary segregation in schools as the south has never worked diligently on funding public school systems, especially those that lay within low-income and high-minority lines. Secondly, skewed data sets have made it harder to recognize that contemporary segregation is still an issue that persists today. This is due to the fact that the data is not accurate and cannot fully determine how segregated the schools truly are. Lastly, gerrymandering has helped build a wall between different groups of people, creating both income segregation and residential segregation as well, which all plays an effect on the racial make-up of schools in the area.

Michaela Bessinger

Mentor:
Ginger Williams, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Interdisciplinary Studies

(IDVS 490 – Williams)

The Impact of the Medical-Dental Divide on Vulnerable Populations

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

Jeylenn Lopez

Mentor:
Ginger Williams, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Interdisciplinary Studies

(IDVS 490 – Williams)

Transiently Inducing RYBP Expression in Glioblastoma Cells Affects Invasion and Migration

Glioblastoma multiforme (GBM) is a malignant, highly invasive form of brain cancer. GBM tumors are diffuse, with tendrils-like processes that extend into healthy brain tissue. In GBM patients, expression of the RING1-and YY1-Binding Protein (RYBP) is downregulated compared to noncancerous brain tissue. Previous studies show that RYBP acts as a tumor suppressor gene in various solid tumors. Therefore, we investigated whether transiently inducing RYBP expression in GBM cells would reduce migration and invasion. We transfected either an empty vector control or RYBP-expressing plasmids into U-87 and U-118 MG glioblastoma cell lines to transiently force RYBP expression. Twenty-four hours after transfection, total protein was isolated and analyzed by SDS-PAGE and Western blot to verify RYBP expression. A wound-healing assay was performed to measure differences in cell migration and cells were imaged after 24 and 48 hours. We also performed Boyden chamber assays to measure differences in cell invasion.

Lauren Patterson

Mentor:
Daniel Stovall, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM103499)

CAS – Biology

COVID-19, regime types, and government repression in Africa

In many African countries, states' use of violence against civilians during the COVID-19 pandemic has been frequently reported in the news and social media. This study examines the extent to which governments in Africa use repression against their citizens in attempts to enforce restrictive measures in response to the COVID-19 outbreak and whether the extent of this repression varies by government type. Using count data analysis on panel data consisting of 829 administrative units of 49 African countries from January to May 2020, this study finds that governments' use of repressive measures against civilians while enforcing movement restriction during the COVID-19 pandemic is conditional on regime type because the types of repressive measures used by the different types of governments vary. For example, repression against civilians without dissent increases in anocracies during the movement restrictions. When responding to riots, which may signal dissent, the repression is lowest in anocracies and greatest in autocracies during the implementation of the movement restrictions. The findings demonstrate that various types of governments, including democracies, use repressive measures against their citizens during the implementation of movement restrictions, implying that the pandemic may have influenced governments in Africa to be less concerned with protecting their citizens' basic civil rights.

Bautista Vivanco & Vincent Wasner

Mentor:
Hye-Sung Kim, Ph.D.

North Carolina and South Carolina Political Science Associations Conference, Winthrop University, SC, February 2022; Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Political Science

Gone and Gravitating

As human beings and artists, what we produce is visibly influenced by the complex interactions that take place around us. The eyes are the physical portal through which information from our environment is collected. We often take for granted the ability to see the world around us, but what happens when we take this ability away? As a student choreographer and dancer, I use contemporary movement to express this unique experience. When taking the ability to see away, you will notice the feeling of needing more support and guidance from one another throughout our lives. In this research, dancers are being blindfolded as a tool for personal growth to navigate through the space. Since the dancers cannot see, they will need more support and guidance from other members of the cast to build a community together. We can verbally support and guide someone throughout our lives, but movement expresses the raw, reckless experiences throughout the body. Movement is generated through reckless and chaotic experiences that are expressed when not having the proper support from one another. Throughout the piece, the dancers will take off their blindfolds to realize that they actually have people around them that are there for them instead of feeling neglected by closer ones. Researching this topic we are taking a closer look into our own personal experiences to illustrate this feeling of needing more support. With help from my cast, this concept will bring awareness to the abilities we take for granted.

Rachel Stevenson

Mentor:
Kelly Ozust, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Theatre & Dance

(DANT 301 – Ozust)

The Impact of COVID-19 and Learning Modalities on the College Experience

On December 31st, 2019, the first outbreak of SARS-CoV-2 was reported to the World Health Organization (WHO) and it was declared a pandemic less than three months later. The COVID-19 pandemic caused widespread lockdowns and closed over 1,300 colleges and universities across the United States. As a result, colleges began to utilize online platforms to continue classes in higher education. Previous research has demonstrated that COVID-19 has impacted the academic performance, social connections, and mental health of college students. Using a mixed-method design, I investigated how the COVID-19 pandemic has altered the college experience for undergraduate students at a small, 4-year university in the southeastern region of the United States. I specifically focused on three areas of college life: academics, social connections, and mental health. I conducted semi-structured interviews and an online survey in order to gather personal narratives and analyze widespread patterns. Survey participants were 140 college undergraduates, while interview participants were ten college students. I found that the COVID-19 pandemic has impacted students in various, complex ways. Survey data showed that 28% of students felt that their academic performance was worse than the previous year, while my interviews suggested that students felt isolated due to COVID-19 safety measures such as wearing masks and social distancing. The students I interviewed also expressed how the coronavirus influenced their mental health, and in turn their academics. This research contributes to higher education literature by exploring interconnected factors of college life in the context of a global pandemic and virtual learning.

Lydia Rodriguez

Mentor: Katie Knop, Ph.D. & Cheryl Fortner-Wood, Ph.D.

Ronald E. McNair Scholars Program Virtual Symposium, Rock Hill, SC, June 2021 & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

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

CAS – Psychology

(MCNR 302 – Fortner-Wood)

Instances of Escapism and the Messages within “Cinderella” Folklore

This paper explores elements of escapism and the messages behind traditional Cinderella folklore using Charles Perrault’s French “The Little Glass Slipper”, Kashmir’s “The Wicked Stepmother”, and “The Poor Turkey Girl” from Pueblo-Zuni mythology. Despite both differences and distances, connections between these tales can be made through their identities as escapist fantasies alongside their Cinderella-esque storylines. The implications behind the tales—upwards-mobility, surviving abuse, and remembering promises—point toward the intended messages that their original authors attempted to convey to their audiences. These messages are linked to the specific time period and cultural contexts that each tale belongs to, but still prove to be no less relevant today as they were generations before. Ultimately, the idea that misfortune is temporary and escape can be achieved from any and all situations can be gleaned from these three tales, connecting humanity and fantasy across miles.

Nyombi Walthour-Corley

Mentor:
Casey Cothran, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – English

(ENGL 200 – Cothran)

Determinants of Unemployment: An Analysis of US States from 2002 to 2020

This paper examines the determinants of unemployment in the United States by using a panel data set from the 50 U.S. states between the years 2002 to 2020. The main variables considered are population, union membership, education, personal income, GDP, and political party control of state legislatures. This paper uses a pooled OLS regression, a fixed-effects regression, a random-effects regression, and a logistic regression to examine the effects of these variables on unemployment. The main finding was that the determinant of GDP was the main indicator of the unemployment rate, with the variables being negatively correlated. This paper also finds that having split legislatures is linked to lower probabilities of high unemployment, using the logistic regression model.

Joseph Yakabowskas

Mentor:
Danko Tarabar, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CBA – Accounting, Finance, & Economics

(ECON 306 – Tarabar)

Greenville, SC Civil Right Movement: Our Story Matters

The Civil Rights movement has long been studied by historians as a national movement. Most of history has highlighted the movement through stories such as Dr. Martin Luther King, Jr.’s ‘I Have a Dream’ speech and the Montgomery Bus Boycott. Continuously, history has conveyed these two moments of the movement as exclusive impetuses of achievements such as the Civil Rights Act of 1964 and the Voting Rights Act of 1965. By doing this, other events, places, and people that made huge contributions to the movement are left uncredited. Furthermore, depicting the Civil Rights movement in its national lens weakens the movements’ long and hard fight to freedom that historically happened in local cities and communities. There are several places such as Greenville, South Carolina, that have had their own moments in the Civil Rights movement that have been disregarded. The local movement in Greenville, South Carolina has a rich history of sit-ins, one of which led to the desegregation of its city library and one that led to a United States Supreme Court case. Greenville County has shaped and influenced the national movement through sit-ins and activism.

Danny Kilgore-Wilson

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – History

(HIST 302 – Dixon-McKnight)

Biplanarity of Subgroup Lattices of Finite Abelian Groups

The subgroup lattice of a group G is the graph whose vertices are the subgroups of G and adjacency is determined by direct set containment. Recently a complete characterization has been given for the groups whose subgroup lattice is planar. Shifting gears, we say a graph is biplanar if it is the union of two planar graphs. In this research project we found partial characterizations for finite abelian groups with biplanar subgroup lattices.

Olivia Cantrell, Josiah Bauer, Gabrielle Cobbina & John Herndon

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

Mathematical Association of America, Southeastern Section Meeting, Rome, GA, March 2022 & Summer Undergraduate Research Experience Symposium (SURE), Winthrop University, Rock Hill, SC, October 2021

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM1103499)

CAS – Mathematics

How Progressives Perceive Polyamory

This research seeks to address how one's progressive political attitudes influence their opinions and perceptions of polyamory. We explore this proposal through the use of identity theory in conjunction with the related ideas of non-normative groups and social structures. Our motivations in exploring this relationship stem from the lack of research on polyamory in general within academia, and especially the lack of studies that cover the intersection of politics and socially constructed dating ideals. As politics become increasingly intertwined with our personal lives, it seems necessary to explore how they might affect how we view the pervasive, intimate social structures that surround us. Research was conducted strictly on Winthrop University's campus and sampled only students who attend the institution. Information was gathered through 12 semi-structured interviews that lasted 20-40 minutes. Participants were asked 19 questions regarding their own personal identities, opinions on polyamory, progressivism, and how all three might intersect. The findings concluded that those who identify with non-normative groups, specifically those who belong to the LGBTQIA+ community, tend to be drawn towards more progressive movements as they are usually more accepting. These findings could be useful in the future as polarizing politics begin to be used as a way of identifying and codifying people. Studying how closely people consider their political views when formulating their thoughts on social structures, such as monogamy, will allow future researchers to refine their own understanding of identity.

**Bobbie Owen,
Kellie Dasher,
& Jessi Lessenberry**

Mentor:
Mike Sickels, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – Sociology,
Criminology, &
Anthropology

(SOCL 519 – Sickels)

Multi-Layered Semiconductor Thin Films Arranged in a p/p Z-scheme Tandem Device for Sustainable Water Splitting in the Absence of Sacrificial Reagents

A multi-layered, thin film device mimicking a p/p heterojunction z-scheme electrode has been prepared as a photocatalyst for water splitting. Stacked thin films of doped $M^{\text{II}}\text{Fe}_{2x}\text{O}_{3-4x/2}$ ($M^{\text{II}} = \text{Zn}^{2+}$ or Cu^{2+}) and $\text{Cu}_x\text{Cd}_{1-x}\text{S}_{1+4x/2}$, referred to as p- Fe_2O_3 and p-CdS, are deposited onto transparent conductive substrates to act as oxygen and hydrogen evolving catalysts (OEC/HEC), respectively. Prior to addition of the OEC and HEC layers, the substrate surface is modified by addition of an ultrathin film of a metal oxide (MOx) which is functionalized with Au nanoparticles. Afterwards, the HEC is sputtered with Pt. The resulting working electrode is a MOx/Au/p- Fe_2O_3 /p-CdS/Pt composite. Structural, morphological, and electrochemical characterizations have been performed. Under suitable conditions and with proper counter electrodes, these devices may show promise as tandem cells for water splitting without sacrificial reagents.

Savannah Hancock

Mentor:
Clifton Harris, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

Supported by SC EPSCoR:
MADE in SC, NSF
#1655740

CAS – Chemistry, Physics
& Geology

(CHEM 407 – Harris)

Looking Backwards to Move Forwards in Music Composition

Throughout the ages, composers have looked to their predecessors for inspiration in their musical compositions. This relationship between the past and the future is a key aspect in the history of art music and has resulted with "anachronistic" styles appearing in groundbreaking works. Hoping to develop my inner compositional voice, I have studied the methods of the Serialists, Late Romantics, Impressionists, and others from the past to create a stylistic pastiche in my newest works for solo piano, "Two Mood Pieces." In it, I attempt to cast a wide range of emotions and timbre into two concise compositions that explore compositional methods of the past updated for the twenty-first century.

David Ulrich

Mentor:
Mark Lewis, Ph.D.

Barnes Recital Hall, Rock
Hill, SC, March 2022 &
Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CVPA – Music

(MUSA 231 – Lewis)

Tandem n/p Z-scheme Device for Sustainable Water Splitting in the Absence of Sacrificial Reagents

Thin films of $n\text{-Co}_x^{\text{II}}\text{Fe}_{2x}^{\text{III}}\text{O}_{3-4x/2}$ and $\text{Cu}_x\text{Cd}_{1-x}\text{S}_{1+4x/2}$, referred to as n- Fe_2O_3 and p-CdS, are deposited onto separate transparent conductive substrates to serve as working and counter electrodes for the oxygen and hydrogen evolving reactions, respectively. Prior to deposition of n- Fe_2O_3 , the substrate is modified by the addition of an ultrathin film of a metal oxide (MOx) which is functionalized with Au. The n- Fe_2O_3 is then deposited on top of the MOx/Au later, and a Co-Pi co-catalyst is electrodeposited onto the surface of the n- Fe_2O_3 , yielding a MOx/Au/n- Fe_2O_3 /Co-Pi working electrode which also acts as the oxygen evolving catalyst. Prior to deposition of p-CdS, the second substrate is coated with a thin layer of molybdenum (Mo). After depositing p-CdS onto the Mo-coated substrate, a Pt co-catalyst is sputtered onto the surface of the p-CdS, yielding a Mo/p-CdS/Pt counter electrode which also acts as the hydrogen evolving catalyst. Under illumination, the majority charge carriers of each semiconductor material will recombine in the external circuit, allowing the respective redox reactions to occur at each electrode. Structural, morphological, and electrochemical characterizations have been performed. Under suitable conditions, such a tandem may show promise for water splitting without sacrificial reagents.

Janae Massey

Mentor:
Clifton Harris, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

Supported by SC EPSCoR:
MADE in SC, NSF
#1655740

CAS – Chemistry, Physics
& Geology

(CHEM 407 – Harris)

Optimizing Pitch Accuracy with Pre-phonatory Tuning

There are too few standard methods for teaching pitch processing and audiation. Pitch is one of the most important fundamental aspects of singing. Teachers do not incorporate pitch processing and audiation into their lessons since they are unfamiliar with the concept. Students must master pitch before moving on to other physical aspects of singing, such as register, resonance, acoustic changes, articulation, dynamics, and other various stylistic techniques. Students can learn to match pitch by using a concept called pre-phonatory tuning, which is the process of internal audition before phonating. In order to teach the student pitch matching, the teacher must have an understanding of cultivation (listening attentively to musical sounds), sympathetic sensations (the physical feelings felt in the body when phonating), vocal organ adjustment, auditory feedback mechanisms, inherent limitations such as maladaptive behaviors, and disabilities, vowel modification onset, and the tendency of students to mimic their teacher's voice. In the absence of these techniques and knowledge, students who cannot match pitch are discouraged from pursuing a musical career. This study offers a variety of pitch matching techniques voice teachers can incorporate into their lessons for students who are struggling to match pitch.

Sarah Ochoa

Mentor:
Kristen Wunderlich, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Music

(MUST 519 – Wunderlich)

Mobile Technology and State Repression during the COVID-19 Movement Restriction: The Case of Nigeria

Government repression against civilians while enforcing restrictive policies related to COVID-19 has been widely and frequently reported in Africa. This study focuses on Nigeria and examines (1) the effect of enforcing lockdown policies on government repression against citizens and (2) whether active social media participation by citizens constrains government repression. Utilizing within-country variation in lockdown policies and 4G mobile technology penetration – a measure of rapid and widespread information-sharing via social media – this study conducts a triple difference (DDD) estimation. It finds that the Nigerian government used more repression in suppressing rioters in areas with high levels of mobile technology penetration in states where lockdowns were implemented. Spillover effects were also found: several state repression measures have increased in high-level mobile technology penetration areas beyond the states in lockdown. In Nigeria, mobile technology has neither facilitated nor constrained government repression of political participation.

Hannah Switzer

Mentor:
Hye-Sung Kim, Ph.D.

North and South Carolina Political Science Associations Conference, Rock Hill, SC, February 2022; Carolina Conflict Consortium, Columbia, SC, February 2022 & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Political Science

(PLSC 503 – Kim)

A Fugue on the Theme Song from iCarly

A fugue is a specific type of musical composition. It makes use of the musical practice known as counterpoint, in which two or more melodic lines are combined and played simultaneously. The fugue I wrote, and will be focusing on, is a three-voice fugue. A fugue begins with a statement of the theme, known as the “subject.” This initial statement of the subject is played at the tonic level, meaning in the original key. The subject is then played again, but this time at the dominant level. This means the subject begins and ends on the fifth note of the scale. The subject played at the dominant level is known as the answer. Fugues will often also contain a countersubject. This simply means that there is another melodic line that appears throughout the piece. The countersubject is also introduced in counterpoint with the answer. This is how the second voice is introduced. The subject and countersubject return to the tonic level as a third voice is introduced. The rest of the fugue consists of the subject, countersubject, and other materials being utilized and appear in different keys before returning to the tonic, concluding the piece. The subject and countersubject of a fugue can be original material or derived from an existing composition. Both the subject and countersubject in my fugue derive from the theme song of the Nickelodeon show iCarly. I combined two melodic lines from the theme song in counterpoint to create the basis of my fugue.

Ryan Certo

Mentor:
Tomoko Deguchi, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Music

(MUST 513 – Deguchi)

Black Loyalists: African American Migration During the American Revolutionary War

In the early stages of the American Revolutionary War, the Royal Governor of Virginia, Lord Dunmore, released a document offering emancipation to all slaves willing to serve the British in an effort to destabilize the American rebellion. While Lord Dunmore's efforts were largely ineffective, his efforts inspired Sir Henry Clinton to offer emancipation to all slaves who sided with the British. In the aftermath of the British defeat, freed African Americans, known as Black Loyalists, were evacuated to British territories including Nova Scotia, London, the Bahamas, and Sierra Leone. A complicated social dynamic emerged among the Black population in these areas, as British territory still operated as a slave society, and as such, a nuanced social class system emerged. This was comprised of freeborn Black Loyalists, African American refugees, Loyalist slaves, and sequestered slaves. The residual British slave state highlights that their efforts towards African Americans stemmed not from altruism, but rather to use them as pawns in a larger strategic plan that ultimately failed. While technically free, Black Loyalists faced large-scale discrimination, oppression, and servitude in a society that did not know how to receive them within the larger context of their own racism. An examination of primary and secondary documents reveals the complex social experience of being free and black within a slave society and illuminates how the British created a new system of bondage for African Americans through the guise of hope.

Nicole Holbert

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

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – History

(HIST 590 – Dixon-McKnight)

Columns: Using Music to Create Emotions and Mental Images

“Columns” is a piece written for string orchestra and solo violin. The title refers to the shape of tornadoes, which are violently rotating columns of air. Similarly, the piece is a reflection of this motion. However, the focal point of the piece is not a tornado itself, but rather a spinning pillar of light that, given the correct set of conditions, will spin for a certain period of time. The intention of the piece is to create imagery for the listener that closely follows the direction, structure, and character of the music itself. The opening slow section is the steady formation of the column. Like a tornado, the column will gain momentum as it increases in size, which is represented in the faster sections. The concluding slow section reflects the column losing energy and power, then slowly dissipating as the surrounding environment stabilizes.

Madison Bush

Mentor:
Mark Lewis, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Music

(MUSA 149 – Lewis)

How does the amount of exercise repetitions affect lean body mass and muscle hypertrophy?

There are many ways to reach fitness goals through resistance training (RT), whether a person’s goal is to lose body fat, gain muscle, gain strength, etc. However, a conflicting part of resistance training is what is referred to as the repetition continuum, or the strength-endurance continuum. Basically, the strength-endurance continuum is a range of exercise repetitions within a set in order to gain muscle size (6-12 reps), muscular strength (1-5 reps), or muscular endurance (12-20 reps). The focus of the study is the effects of higher frequency resistance training versus lower frequency resistance training on lean body mass (difference between total body weight and body fat weight) and muscular hypertrophy (muscular size). A result of this study is higher and lower frequency resistance training can have similar results if volume is increased per week. Lean body mass is known to increase with moderate frequency training. The purpose of this study is to discover the effects the number of repetitions along with weight (like higher reps with lower weights or lower reps with higher weights) have on muscle size (hypertrophy) and strength.

Arianna Whitmire

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(PESH 381 – Wojcik)

School Closings and Demographic Balance in Rock Hill Elementary Schools

This paper expands on previous research on the Rock Hill School District’s (RHSD) high schools by adding analyses of demographic balance in the district’s elementary schools. Studying equity and balance in RHSD is especially interesting because of the district’s history of swimming against the “nationwide resegregation tide.” Using both quantitative and qualitative methods, I investigate the consequences of the district’s recent decision to close three elementary schools. These consequences include racial/ethnic balance, socioeconomic balance, and community perceptions of the school district’s current trajectory. According to current and historic data showing the dissimilarity indices between the largest racial/ethnic groups in Rock Hill, this report concludes that racial/ethnic balance in the elementary schools of RHSD has decreased in recent years, while socioeconomic balance has been maintained. This finding could indicate a prioritization of socioeconomic factors over racial/ethnic consideration in decisions made by the board. Lastly, research suggests that the community surrounding the RHSD may be dissatisfied with recent changes to the district due to several factors, including lack of adequate representation for peoples of color in Rock Hill, increased student to teacher ratios, and increases in school populations during the COVID-19 pandemic.

Maria Luisa Manley

Mentor:
Stephen Smith, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Virtual, April 2021 & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by a grant (1527762) from The National Science Foundation to Stephen Smith

CAS – Political Science

(PLSC 502 – Smith)

Protein intake for building muscular hypertrophy

Muscular hypertrophy is often thought of together with protein intake. Protein plays a vital role in hypertrophy. However, due to the amount of false information about how protein should be consumed to build muscle mass, many people are unaware of how protein should be consumed to stimulate protein synthesis. Protein consumption allows for an individual’s body to go through protein synthesis which increases muscle mass. Therefore, protein intake should be much higher than the recommended value for building muscle mass. The numbers estimated have shown that 20-40 grams of protein contribute to the greatest increase in muscular hypertrophy. The specific time for consuming protein can contribute to a greater increase in hypertrophy. Studies have estimated that consuming protein in the morning and directly after workout results in an increase in muscular hypertrophy. This article will go through the specific findings for how protein drives hypertrophy, the recommended amount of protein and the specific time to consume protein for hypertrophy. Individuals trying to maximize muscular hypertrophy can gain an understanding of the role protein plays in muscular hypertrophy. This includes bodybuilders, people new to exercise, or anyone trying to build muscular hypertrophy.

River Anderson

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(PESH 381 – Wojcik)

The Effects of Concussions

A concussion is a type of traumatic brain injury that is caused by a blow to the head. Concussions can happen when playing sports, being in a car accident, slipping and falling on your head, etc. Not all people take concussions seriously, which is an issue. It is important for one to understand how dangerous concussions are if symptoms are ignored. If one ignores symptoms, it will affect one long term. Symptoms include headache, neck pain, depression, excessive fatigue, trouble sleeping, ringing in the ears, memory loss, dizziness, emotional distress, nausea, and vomiting. There is no specific cure for concussions. It just takes time for one to heal. One who gets a concussion needs to be seen by a physician to help monitor symptoms. There are different types of treatment concussion patients can receive to help the healing process. Treatment can include seeing a physical therapist to help patients gain their balance, prevent dizziness, and loosen tightness in the neck. Physical therapists can give a test to measure the amount of exercise that is safe to do, which is called the Concussion Treadmill Test. This test will find the heart rate threshold of the amount of exercise allowed in the patient. Through the whole process of a concussion, the goal is to get the patient back to normal and help them return to daily activities.

Alexis Snyder

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(PESH 381 – Wojcik)

CRT's Effect on Attitudes Towards Law Enforcement

Critical Race Theory, the academic and legal movement to teach racial justice, not only examines quality of life, but also addresses how the intersection of race and other identities is important to improving this quality of life. The purpose of this analysis is to address how knowledge of CRT affects attitudes towards police brutality in the United States. The research being examined is survey data collected on college age students including demographics, CRT framed questions, and attitudes towards police officers. There is currently significant data showing that race affects policing and how civilians view these encounters so analyzing the attitudes towards police officers allows for us to gauge the importance of CRT education and conversations.

Nyssa Hemingway

Mentors:
Adolphus Belk, Ph.D.;
Scott Huffman, Ph.D.;
& Cheryl Fortner-Wood, Ph.D.

Winthrop McNair Research Symposium, Winthrop University, Rock Hill SC, June 2021; Southeastern Association of Educational Opportunities Programs Personnel (SAEOPP): McNair/Student Support Services (SSS) Regional McNair Scholars Conference, Virtual, June 2021; & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CAS – Political Science

(PLSC 490 – Huffman;
MCNR 302 – Fortner-Wood)

RGC and DRG Growth Cone Response to SEMA 3A

To investigate the regenerative abilities of the mature nervous system, the embryonic nervous system is used as a model. Retinal ganglion cells (RGCs) are neurons located in the retina that send out axons to be navigated through the eye and into the brain. These axons are guided by growth cones, the developmental subunits that lie on the tip of an axons, which are essential for the formation of the optic nerve during neural development. Growth cones contain receptors that respond to different guidance cues. In vitro, an attractive cue will not cause growth cones to collapse and a repulsive cue will cause growth cones to collapse. An accepted guidance cue is SEMA 3A, a protein in the semaphorin family. Previous studies on chickens have proposed that SEMA 3A is a repulsive cue for dorsal root ganglion cells (DRGs) but not RGCs. However, our lab has found that SEMA 3A causes collapse of RGC growth cones in chick embryos. There are many possible hypotheses that could account for the difference between the results from our lab and previously published results. I am testing the hypothesis that there is a difference in sensitivity to SEMA 3A between RGC and DRG growth cones. To test my hypothesis, I quantified the collapse of both RGC and DRG growth cones treated with the same concentrations of SEMA 3A in vitro to create a dose response curve. We have found a similar growth cone collapse response between DRGs and RGCs at different concentrations of SEMA can be reached, and differential growth cone sensitivity is not likely to be an explanation for the difference we have observed from previously published results.

Layla Carver

Mentor:
Eric Birgbauer, Ph.D.

Summer Undergraduate Research Experience Symposium (SURE), Winthrop University, Rock Hill, SC, October 2021 & Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM103499)

CAS – Biology

Sleep Extension and Napping Found to Improve Athletic Performance

Athletes have very busy schedules dealing with practices, games, school, and work. With this busy schedule, athletes tend to have less hours of sleep than a regular person. Studies have demonstrated that if an athlete extends their hours of sleep or make up for lost hours of sleep by taking a 45-minute nap during the day, it can improve their athletic performance. Depending on the sport, some athletes may need more hours than other athletes. It's also shown that getting enough sleep daily can decrease fatigue and improvements in mood. Nutritional interventions also play a role in sleeping habits. There was a study done demonstrating that diets high in carbohydrates may result in shorter sleep latencies, and diets high in protein may result in improved sleep quality, and diets high in fat may negatively influence total sleep time. So, when keeping an eye on athletes' sleep routine, it's also important to keep an eye on their nutritional status. Overall, athletes that get enough sleep daily have a positive outcome in their health dealing with fatigue and mood and improvement in their athletic performance.

Shannon Preston

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Physical Education, Sport, & Human Performance

(PESH 381 – Wojcik)

Characterizing the Effect of Bacteriophage Cain Genes on *Mycobacterium smegmatis*

Bacteriophages are viruses that use bacteria to replicate and are studied as a model for host-pathogen interactions and co-evolution. The HHMI SEA-GENES program aims to contribute to this body of knowledge by evaluating phage gene function. This particular study intends to determine gene functions of phage Cain, a virus that targets *Mycobacterium smegmatis*, through molecular cloning and cytotoxicity assays. Molecular cloning, the combination of pEXTra plasmid and target genes, creates a product that can then be used in these phenotypic assays. Genes are individually expressed in *M. smegmatis* to identify those that modify bacterial growth and fitness. To initiate the cloning process, individual Cain genes were amplified using polymerase chain reaction, then verified via gel electrophoresis. The samples were then purified for isothermal assembly, which is the construction of a plasmid from purified DNA and plasmid backbone. The assembled plasmid was integrated into *E. coli* and *M. smegmatis* colonies via bacterial transformation. Through clone verification, colonies carrying the gene-specific plasmid were tested to confirm they contained the inserted gene. Research progress was measured by several benchmarks, including successful amplification of Cain genes, assembly of genes in the pEXTra plasmid, *E. coli* and *M. smegmatis* transformation, and completion of a cytotoxicity assay. Future directions of this research include additional phenotypic assays that investigate phage defense mechanisms, and studies that assess the physical interaction between Cain and *M. smegmatis* proteins.

**Will Douglas,
Kristen Gohs,
Brady Harmon,
Andreas James,
Samantha Koenig,
Joshua Le Clerg,
Madeline Linker,
Mason Linker,
Ma'Liah Maddox,
Bryn Radvanski,
Gabrielle Walker,
Ashley Wood,
& Mackenzie Jenkins**

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

SEA Symposium, April
2022 & Annual
Showcase of Under-
graduate Research and
Creative Endeavors
(SOURCE), Winthrop
University, April 2022

Supported by SC INBRE
grant from the National
Institute for General
Medical Sciences;
Howard Hughes Medical
Institute for the
SEA-GENES Program

CAS – Biology

(BIOL 526 – Kohl & Frost)

Behind My Eyes

Human beings are filled with stress and a weight that can translate to mental issues such as anxiety and depression. Choreographers can use our medium to help cope with these issues. I have used my own personal trauma as well as having conversations with my dancers about their mental health to create this piece. Unfortunately, some people do not recognize the severity of mental illness. In this research I have tried finding ways to take people to such a place of discomfort that they are feeling nearly the same amount of pain as those who are dealing with it. The anxiety and anticipation when watching a horror movie is the feeling I want to reach. I want my audience to feel uneasy about the dance. Mental illness is never comfortable and that is the feeling I want to convey. More awareness would lead to society truly recognizing the horror of mental illness. People will advocate, but most do not truly understand. I believe that if people see the agonizing state of mind, they will sympathize with us. Researching this topic, I am looking into my own mind as well as the minds of my dancers and experiences to bring out the truthfulness of these illnesses. Watching other dances that focus on mental illness from different perspectives is also very useful in bringing many aspects together in a way that will make sense to the community.

Madison Syswerda

Mentor:
Kelly Ozust, Ph.D.

Annual Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CVPA – Theatre & Dance

(DANT 301 – Ozust)

Rape Myth Acceptance and Gender Characteristics

We examined this issue of gender identity, hypothesizing that those who identified as more masculine would be more accepting of rape myths than those who identified as feminine. We also hypothesized that these gender identities would be more predictive than gender categories (man/woman). Participants were adults with a mean age of 24.81 (SD=10.34). The majority were men (52%) and Caucasian (73%). Participants completed the Bem Sex Role Inventory. They then read a scenario describing a sexual assault of a man on a woman and provided their opinions of the situation and responded to the Rape Myth Acceptance Scale. In support of our hypothesis, we found a pattern where men and masculine adults were more accepting of rape myths and judged an attacked woman more harshly. Women and feminine adults demonstrated the opposite pattern. Despite this pattern, we saw some differences between men and masculine adults. Both of these groups had higher agreement with rape myths and saw the woman in our scenario as weak. However, masculine men had the most negative attitudes toward the woman in our scenario, while men offered more excuses for the accused man in our scenario. In contrast, we saw similarities between women and feminine individuals. Both groups rejected rape myths, perceived a negative impact for the woman in our scenario, and had little sympathy for the male accuser. These findings suggest that both gender and gender identity play a role in adults' perceptions of rape myths and sexual assault.

Joslynn Luto & Alyssa Dodds

Mentor:
Merry Sleight, Ph.D.

Southeastern
Psychological Association
Conference (SEPA),
Hilton Head, SC, March
2022

This project was selected
for the Psi Chi/CEPO
Showcase Session and
was awarded 1st place
by the Committee for
Equality of Professional
Experience at SEPA

CAS – Psychology

(PSYC 302 – Sleight)

We are Venom: The Queer Relationship between Eddie Brock and the Venom Symbiote in MARVEL Comics

The characters of Eddie Brock and the Venom Symbiote from Marvel Comics are shown through the lens of queer theory to be in a queer relationship that remains hidden due to literature's history of hiding queer characters in the subtext of comic books. This claim can be supported by many aspects of the comic books Venom appears in. The first piece of evidence lending credence to the possible romantic relationship is that Eddie and the Venom Symbiote first bonded in a church. There are many examples of instances where Eddie Brock talks about the Venom Symbiote that lend evidence to the existence of a queer relationship between the two of them. The comic art has a tendency to project the relationship between the characters as romantic. The final evidence of the two characters who embody Venom being in a queer relationship is them having "children" together and being "parents" in a sense. Despite the queer aspect of the characters existing in "Venom" over the course of their long history, why would it be hidden? This can all be tied back to the time period that the Venom character was introduced. Additionally, the popularity of the character of Venom can be seen as a reason Marvel leaves the relationship in the subtext. The nature of their relationship will likely remain hidden due to the time the character was created and public reactions to LGBTQ characters, but those who peel back the layers of the comics and view the characters through the lens of queer theory will find one of Marvel's most tumultuous and passionate relationships

Alex Kirby

Mentor:
Robert Prickett, Ph.D.

Winthrop University
English Department
Undergraduate/
Graduate Research
Conference, Virtual,
March 2022

CAS – English

(ENGL 200 – Prickett)

Transformations: Examining Jo March's Transmasculine Identity in Little Women

In 1868, Louisa May Alcott first published Little Women. While it would later be recognized as an American classic, there has been a great deal of debate over the significance of gender and gender roles in the story. Some scholars have noted the novel's queer undertones, but most of these interpretations have been limited to exploring queerness through the lens of lesbianism. There has been very little scholarly discussion about the possibility of Jo being transgender or non-binary. In this paper, I utilize traditional interpretations of Jo's queerness by scholars such as Roberta Seelinger Trites and Ann B. Murphy to argue that feminist readings of Jo as a lesbian rely on essentialist ideas about what it means to be a "woman" after being assigned female at birth. Relying on textual evidence as well as scientific research on the developmental stages of female-to-male transgender youth, I argue that Jo's gender expression, rather than their sexuality, is at the heart of the character's queer identity.

Milo Wolverton

Mentor:
Jo Koster, Ph.D.

Winthrop University
English Department
Undergraduate/
Graduate Research
Conference, Virtual,
March 2022

CAS – English

(ENGL 494 – Koster)

Winston vs. the World

When looking at the criticism published about George Orwell's novel Nineteen Eighty-Four, there is a significant lack of psychoanalytic analysis. There is an abundance of reader response and new historical approaches, answering the question, "Did Orwell's prediction come true?" This inspired my article "Winston vs. the World," where I take a psychoanalytic approach in my analysis of Orwell's novel. I take a close look at the unconscious of the character Winston and how his actions are directly influenced by the resurfacing of his repressed past experiences. By focusing on key events in the book that trigger his actions of rebellion, I seek to prove that Winston is used by the Party as a control subject, observed to correct the flaws in the Party's psychologically controlling system. Winston's memories have been repressed deep into his unconscious, resurfacing because of outside triggers, and these repressed desires influence his actions of rebelling. The party acts as the Superego dictating Winston's moral and physical understandings by using psychological conditioning and violence, while his uncontrolled reactions and suppressed desires characterize his id. Winston's acts of rebellion and attempts to join the brotherhood display his ego trying to find a middle ground between it all. Unfortunately, the superego engulfs the other two as the Party takes control of Winston again. Although Winston's unconscious seeks to assert his own individuality, the Party ultimately resets him again, placing him back into Oceania for further observation. I assess where the true power lies in Big Brother and determine it isn't in the oppressive technology but in the mass paranoia that the residents of Oceania experience; therefore, using Winston, Big Brother is able to strengthen and fix the flaws in their system to avoid losing their power.

Amber Nelson

Mentor:
Leslie Bickford, Ph.D.

Winthrop University
English Department
Undergraduate/
Graduate Research
Conference, Virtual,
March 2022

CAS – English

(ENGL 300 – Bickford)

How Marvel's Black Panther Enforces Diasporic Disunity

This paper explores Black Panther's failure to present its intended message of unity between African peoples and African Americans by mishandling the latter's historical political movements and motives. The film's two leading characters, T'Challa and Erik Killmonger, represent two sides of the African diaspora that have not always had favorable relations between each other. Throughout the film, both men oppose the other, as Killmonger harbors violent black nationalist and revolutionary views that threaten the continued safety of Wakanda. As the country's current ruler, T'Challa is naturally opposed to Killmonger, and their strife sparks an internal war. Although the film ultimately ends on a bittersweet but optimistic note, it is the mishandling of the ideas of the community Killmonger represents that exposes how the film has actually promoted continued misunderstanding of the many sociopolitical issues that African Americans face. Furthermore, the film gives the responsibility of finding a solution to African American issues to Wakanda, rather than America—the country that Killmonger was actually targeting. The elevated focus on the role of African peoples during the Transatlantic slave trade, the purely antagonistic role that Killmonger plays, the minute appearance and sacrifice of an African American woman, and the insertion of a token "white savior" character all contribute to the film's failure to promote black unity. The film ends without both sides truly understanding or helping the other. Thus, what Black Panther conceptualizes is continued diasporic disunity and a lack of understanding regarding the politics and struggles of the African American community.

Nyombi Walthour-Corley

Mentor:
Robert Prickett, Ph.D.

Winthrop University
English Department
Undergraduate/
Graduate Research
Conference, Virtual,
March 2022 & Annual
Showcase of
Undergraduate Research
and Creative Endeavors
(SOURCE), Winthrop
University, April 2022

CAS – English

(ENGL 200 – Prickett)

Dear Freedom,

Oftentimes as choreographers and creatives, we get engulfed into our own personal story. Our own intimate experiences and circumstances are the spine of our work, and we share these experiences with our dancers in hopes that some part of our story relates to them. Dance is just another word for storytelling, so, as a choreographer I want my work to represent me, but it is just as important for the work to represent my dancers as well. My piece serves as a portal to connect the past to the present. A lot of times society talks about healing our inner child, but no one addresses healing our inner adolescence. In fact, preteens and teenagers seem to be the most judged and misunderstood age group. Through this dance it is my hope to communicate the effects of the unhealed trauma that lies within each of us from tender ages. Choreographic elements like bold and precise movements are a staple for this piece, but those fiery movements are then accompanied by graceful gestures to represent the layers of a human being. Sometimes we are tough, sometimes we are not. You can also look at the contrast of movement as a symbol to represent the mood swings and attitudes we go through at said ages. There is a lot of unison, as my dancers are moving the same way at the same time to build the sense of an army. That's what the piece is about: being at war with the world.

Nakia Hartley

Mentor:
Kelly Ozust, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

CVPA – Theatre & Dance

(DANT 301 – Ozust)

Phototherapy in Ankle Injuries

Phototherapy is often an underrepresented and under researched area of study in the healthcare field. This therapy is a special type of light treatment that is not sunlight to help improve the healing process of the body and skin. People commonly suffer from ankle injuries, podiatry complications, and jaundice of the skin. Light sources such as lasers, LED, and broadband light help reduce inflammation and pain in injuries. These sources have been shown to improve angiogenesis, increase blood supply, and increase numbers of cells and their functions. Therapists can benefit from using phototherapy to help reduce the time of injuries in the inflammatory stage and help reduce discomfort and pain for their clients. Treatments for injuries should include the normal PRICE methods but pairing it with phototherapy like LED lights, red UV light, and green UV light can increase the quality of care and help return patients to performing ADL. The presentation will discuss how specifically ankle injuries are affected by light therapy sources.

Janae Myers

Mentor:
Janet Wojcik, Ph.D.

Annual Showcase of Undergraduate Research and Creative Endeavors (SOURCE), Winthrop University, April 2022

COE – Education Core

(PESH 381 – Wojcik)

Optical Materials in Na-Y-Si-O and Related Quaternary Systems

This project utilizes the materials genome approach in order to discover new compounds at an accelerated rate. Novel materials for optical applications, such as luminescent scintillators, are desired for improvement of properties. Using aqueous speciation and density functional theory (DFT) calculations for experimental guidance, potential new scintillating materials may be discovered in the efforts to improve scintillation materials capabilities. Synthesis work targets existing compounds of already-high density, then examines metal substitutions for potential discovery of new compounds with higher density. Na-O-Si-Y and Y-Zr-O systems were investigated with the two existing compounds, $\text{Na}_9\text{Si}_6\text{O}_{26}$ and $\text{Y}_4\text{Zr}_3\text{O}_{12}$, to investigate if these could be synthesized under mild hydrothermal conditions. Metal salts were mixed with complexing agents, base and water, then enclosed in a hydrothermal vessel at 200 °C for a few to several days. After reaction and isolation by wash/centrifuge, products were analyzed by powder X-ray diffraction (XRD), and scanning electron microscopy with energy-dispersive X-ray analysis (SEM/EDS). For $\text{Y}_4\text{Zr}_3\text{O}_{12}$, XRD and SEM revealed primarily Y_2O_3 with prismatic and hexagonal crystals, and for $\text{Na}_9\text{Si}_6\text{O}_{26}$, EDS revealed a quaternary phase of approximate composition $\text{Na}_3\text{Y}_4\text{Si}_{12}\text{O}_{31}$, with spheroidal crystalline formations. Future work will include further investigation of this quaternary product, as well as continued feasibility and substitution studies using hydrothermal methods.

Meagan Donohue & Kameron Johnson

Mentor:
Maria Gelabert, Ph.D.

Summer Undergraduate Research Experience Symposium (SURE), Winthrop University, Rock Hill, SC, October 2021

Supported by SC EPSCoR: MADE in SC, NSF #1655740 and GEAR-CRP, U of SC Subaward 20-4041

CAS – Chemistry, Physics & Geology



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 34th Annual Undergraduate Juried Exhibition made by juror Jonell Logan, Creative Director at the McColl Center for Art + Innovation in Charlotte, NC.

Karen Howard

Director, Winthrop University Galleries

Artist	Title
Autumn Jackson	Natures Pot
Autumn Jackson	Iron mothers warm embrace
Autumn Jackson	Unmentionables
Grayce Kellam	Head of a Woman
Grayce Kellam	House on Hickory Pine
Danya Babcock	Inner Child
Devlin Thayne	Untitled
Devlin Thayne	Self Portrait with Cat
Sky Gilbert	Stick Earrings Artwork Title
Sky Gilbert	Floral Hair Stick

Artist	Title
Abigail Catoe	Ubiquity
Maisy Ellinger	Nightmares
Emily Shelton	Hypnagogia Triptych: Lyra, Terra, and Mira
Lauren Baechel	Solace
Kai Griffin	Tensions 1.1
My'Asia McCollum	American Black
Nico Sweet	Dualism
Nico Sweet	Childhood Oblivion
Anna Catoe	Dinner is Served
Griffin Cordell	As the Candle Burns
Griffin Cordell	Birthday Goat
Griffin Cordell	Bad News for a Suburban Family
Pahj	Poodle
Jason Lindsay	Writhing
Jason Lindsay	Stuck at Home
Jason Lindsay	Unconscious Textures #2
Jason Lindsay	Unconscious Textures #4
Jewel Edwards	Ultra Ultra (video)
Jewel Edwards	Ultra Ultra (screen print)
Menatalla Shalaby	Ashaq



Autumn Jackson, Natures Pot
DiGiorgio Merit Award



Autumn Jackson, Iron mothers
warm embrace
Lewandowski 3rd Place



Autumn Jackson,
Unmentionables



Grayce Kellam, Head of a Woman
Lewandowski 2nd Place
CVPA Dean Merit Award
CVPA Dean Purchase Award



Grayce Kellam, House on a
Hickory Pine
Heath Merit Award



Danya Babcock, Inner Child



Delvin Thayne, Untitled
Stanley Merit Award - sculpture



Delvin Thayne, Self Portrait with
Cat
Laroche Merit Award



Sky Gilbert, Stick Earrings



Sky Gilbert, Floral Hair Stick
Wofford Thomas Merit Award



Abigail Catoe, Ubiquity



Maisy Ellinger, Nightmares
Lewandowski 1st Place



Emily Shelton, *Hypnagogia*
Triptych: Lyra, Terra, and Mira
Juror's Honorable Mention



Lauren Baechel, *Solace*
Muller Merit Award



Kai Griffin, *Tensions 1.1*



My'Asia McCollum, *American Black*
Stanley Merit Award - painting



Nico Sweet, *Dualism*
Marlowe Merit Award



Nico Sweet, *Childhood Oblivion*
Breakfield + Randolph Merit Award



Anna Catoe, Dinner is Served



Griffin Cordell, As the Candle Burns



Griffin Cordell, Birthday Goat
Dalton Best in Show
Harriet and Martin Goode Artists
Found Purchase Award



Griffin Cordell, Bad News for a
Suburban Family



Pahj, Poodle
Department of Fine Art Merit Award



Jason Lindsay, Stuck at Home



Jason Lindsay, Writhing
Morrell Merit Award



Jason Lindsay, Unconscious Textures #2
Cassidy Purchase Award



Jason Lindsay, Unconscious Textures #4
Dalton Brabham Merit Award



Jewel Edwards, Ultra Ultra
Dalton Brabham Merit Award

Department of Design Interior Design Senior Thesis Research



Interior Design seeks to improve the lives of people through the environment that they work and live in with our design solutions. Winthrop Interior Design seniors choose a subject which will help to improve the lives of the users. Student research subjects like community well-being, health support, and education to design facilities that will benefit society.

Senior students spent their fall semester researching their topics to develop appropriate design solutions that will address the specific needs of the end users of their respective spaces. The research conducted is presented to illustrate how their design direction and choices will be influenced.

With their research findings, senior interior design students developed a complete facility that will successfully meet the needs of the users and improve their lifestyles.

Laconia Community Center

Skylar Dewyea

Mentor: Sangwon Sohn

Interior design has the ability to influence people's emotions and behavior. It has the potential to evoke positive feelings of comfort and safety through the use of colors, fabrics, and textures. As designers, we can use color psychology to inflict different emotions. Laconia Community Center focuses on youth development and socialization. Vibrant shades such as yellow, orange, and green inspire socializing and communication, while icy blue and green, evokes a calming sense. Through research and selective color usage, color has the power to influence how users feel inside the space and will affect their mood while they participate in different types of activities. The picture below is the Dream Scape home, and it uses warmer shades of color to inspire relaxation and boost the sense of comfort. Careful color consideration will aid in the final aesthetic to support the overall design concept of these two projects.



Supporting Success Through Human-Centered Design

Rebecca Karban Mentor: Sangwon Sohn

Interior Design can have a large impact on the way we interact with and feel within spaces. Design research has shown that there are several factors that can greatly affect the users of the space, such as lighting, acoustics, and spatial relationships. The Next Office and the Hive Learning Center are both spaces that address the design approaches that are supported by research and cater to the specific needs of the space to promote a better working and learning environment. The Hive Learning Center provides youths with a safe space that can be utilized for additional support and academic enrichment. The purpose of the space is to engage middle and high school age students in their education and promote learning. The design of the space seeks to encourage collaboration and socialization between the users of the space. A range of flexible seating and work areas cater to the individual needs of each person and promote collaboration between users. The space uses data collected through precedent studies, case studies, demographic and user-specific research, interviews, and observation to inform the design direction.



The Unknown Waste: Research Facility

Lindsey Fowler Mentor: Sangwon Sohn

Interior Designers use the process of evidence-based design to create spaces that are successful to not only the individual's mind and imagination, but allows for the overall function to become lucrative. Evidence-based design is the process of constructing a building or physical environment based on scientific research to achieve the best possible outcome. "The Unknown Waste: Research Facility and Sea Turtle Hospital" utilizes the method of evidence-based design by understanding the multiple building types under one roof, as well as the concept of designing something that did not previously exist.



Sustainable Design: Reducing Waste with Shipping Containers and Renewable Resources

Asia Piskorski

Mentor: Sangwon Sohn

Trends for Interior design are constantly changing. Interior Design seeks to create something functional while protecting the environment. Building with shipping containers has become very popular, which is largely due to its sustainable and structural benefits. Research shows containers are more cost-effective and more convenient for building. They also work in a modular system making the builds easily customizable. Many containers are discarded every year and studies reveal upcycling a container takes only a fraction of the energy usage and reduces chemicals that are released into the air because of melting down the metal.

New Beginnings is a Homeless Shelter located outside of Skid Row in Los Angeles, CA. Skid Row is where the largest population of people experiencing homelessness in the United States reside. Recycled materials and other renewable resources like rubber and bamboo are used in the shelter and throughout the buildings. Utilizing these materials and resources allow for the design to reduce waste and provide a healthier environment that supports success.



Maternal Essence

Makayla Strozier

Mentor: Sangwon Sohn

Interior Design can impact the experience of a space. Color psychology, lighting, and sustainable elements can develop an insight into how any space affects emotions and experience. Serenity Sports Medicine Clinic and Maternal Essence Drug & Alcohol Rehabilitation both aid individuals who are healing through an intense step-based program. Healing requires a positive and healthy environment. Maternal Essence Drug & Alcohol Rehabilitation helps the healing of expectant mothers by providing a healthy and comforting environment for patients to grow and build connections with their children throughout their recovery process. The Rehabilitation Center will mentally and physically challenge patients through their journey, preventing any possible setbacks throughout the recovery process. To create a better experience for patients, research was completed to learn how light, biophilic design, and color psychology benefit certain spaces. Incorporating blue, green, and neutral hues and sustainable materials within the space will lift spirits, focus senses, and improve air-quality. An exceptional amount of windows to enhance daylight will help reduce stress.



How to Create Less Clinical Environments Through Environmental Psychology

Ann Taylor

Mentor: Sangwon Sohn

Environmental psychology focuses on the relationship between individuals and their surroundings. It affects ergonomics, lighting, acoustics, wayfinding, and universal design. Through research and case studies, environmental psychology has shown that it greatly affects the users experience in the space. The Sunrise Care Facility and Healthy Minds Recovery Center provide an environment that creates positive effects between the user and their surroundings. The Sunrise Care Facility is a assisted living facility for elderly people that uses environmental psychology through natural lighting, along with acoustics throughout the interior. The additions of amenities and recreational facilities provide a space that is lively and desired. Throughout the design of Healthy Minds Recovery Center, environmental psychology is used through geometric forms along with skylights that provide natural lighting, bringing a sense of nature into the interior. It focuses on transforming the image of out-patient clinics and providing a concept where patients are provided a more inviting environment that is less institutional.



Where Nutriton Meets Design: Sprouts Children's Museum

Trent Webb

Mentor: Sangwon Sohn

Within the field of interior design, users can experience a variety of emotions when entering a space. From the color selection on walls to the upholstery on the couch, how a person interacts with a space can affect their educational opportunities within the environment and their feeling towards the space. Midtown Metro: Extended Stay and Sprouts Children's Museum both rely on user experience to further a person's education and overall wellbeing. Incorporating natural light has been proven to uplift moods, progress healing times, and promote learning. Muted hues can also allow a user to experience a sense of comfort due to the repetition and similarity they are seeing within the space. Sprouts Children's Museum examines how natural light, hues, and the display of information impact how a person learns and what they take away from their visit. Research was completed to find a solution to address positive learning environments for adolescents, which included natural light, hues of green, blue, and yellow, and a strong form of wayfinding. Using these elements has allowed both projects to ease anxiety, further knowledge within spaces, and promote an overall positive user experience.

Department of Fine Arts

B.F.A Capstone Exhibition

MENAGERIE

a strange and diverse collection of artworks

Menagerie features the work of twenty graduating Winthrop BFA students. Their final projects present a range of themes related to race, politics, gender, nature, personal trauma, and perception, among others. The students come from a variety of backgrounds, but all have persevered through their challenges. These past two years have been hard on all of us, but these students have demonstrated tremendous courage and grit, working through every obstacle in order to complete their BFA work successfully. These final works of art are a testament to that. The show explores these artists' interests, focusing on themes of identity, contemplation and reflection, and internal struggle. Menagerie provides viewers with an opportunity to reflect upon a diverse range of subject matter, showcasing individual approaches to these issues, but also highlighting our shared universal connections of curiosity and discovery brought to life through the physical act of making art.

Maggie McKinney

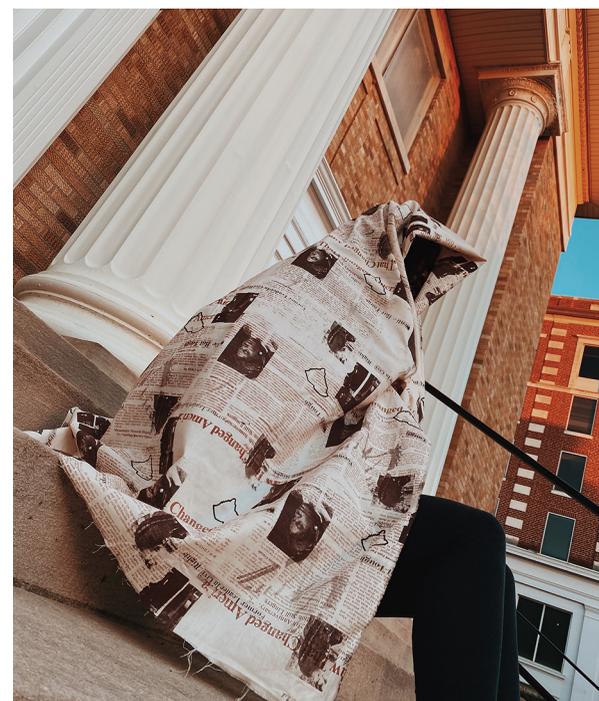
Senior Art History Major

Melanie Clark

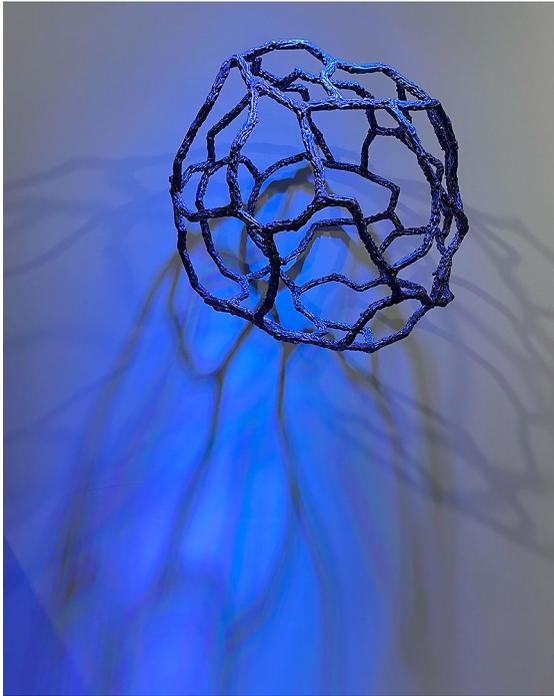
Senior Art History Major



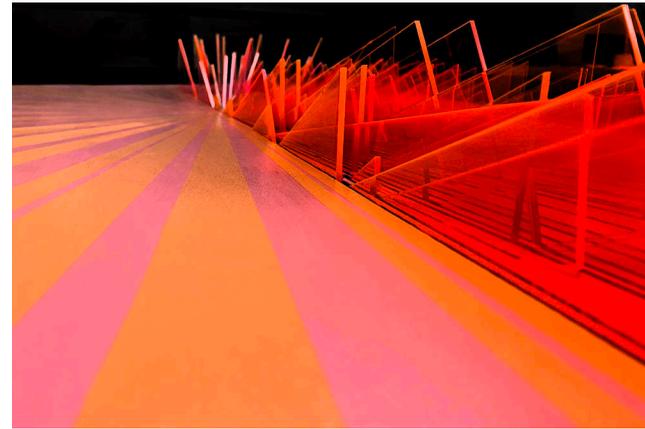
Delvin Thayne, *Some Things Just Aren't Meant for You*



Shadae Tompkins, *Fears of a Black Woman*



Abigail Catoe, Ubiquity



Kai Griffin, Theoria



Sophie Harvey, My Strangest Delivery Yet



Jason Lindsay, Desolation



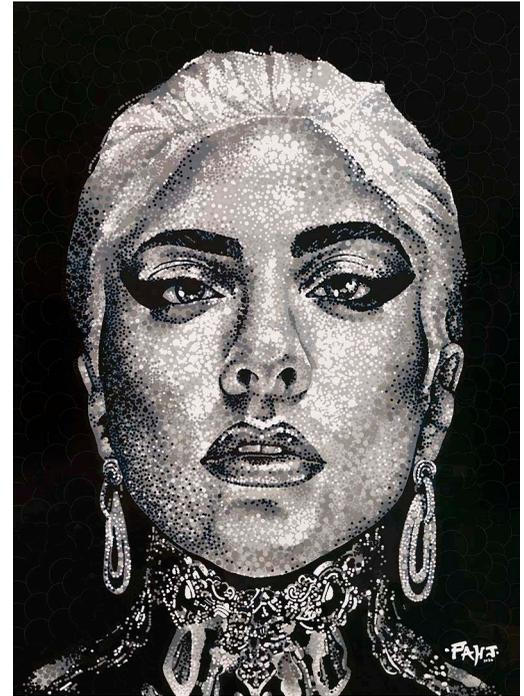
Kayla James, Everything Is Fine



Meshaal Malik, The Woman of Drive



Nico Sweet, Equivocation



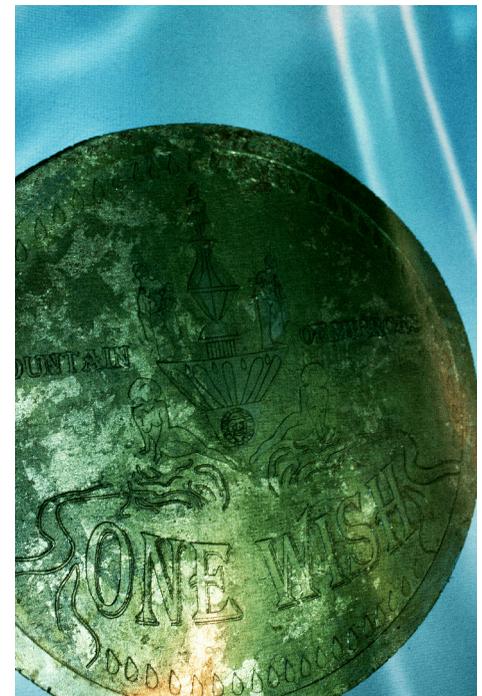
Pahj, Germanotta



Sky Gilbert, The Materiality of Flowers



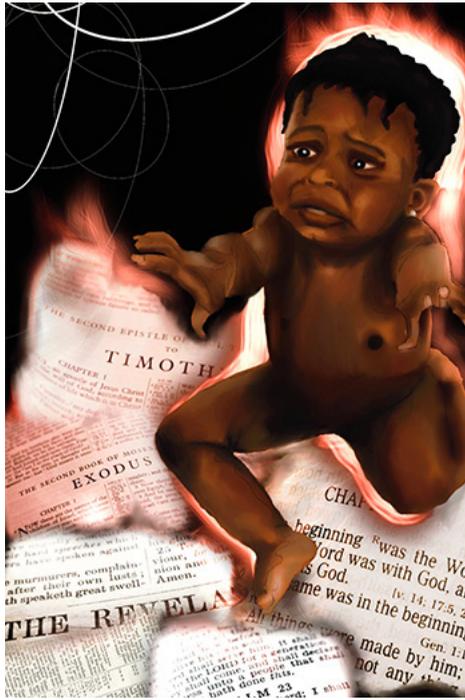
Grayce Kellam, Cipher



Trenedy Hayden, Fountain of Mirrors



Cordell Griffin, *Absurdum*



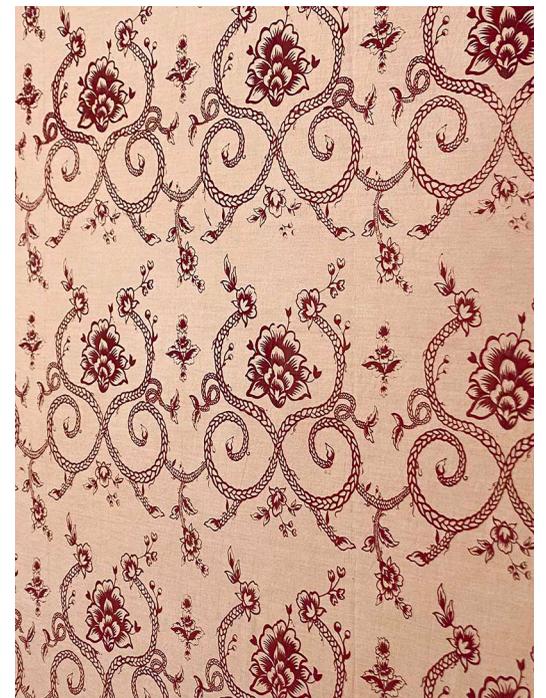
My'Asia McCollum, *Into the Dark*



Lauren Baechel, *after the line*



Donya Babcock, *Assaulted In His Sleep*



Jewel Edwards, *Beauty and Audacity*

Department of Theatre and Dance Festivals and Showcases

Fall Student-Directed One-Act Festival, November 2021

Eye to Evil Eye by Dan Weatherer,
directed by **Liz Ruziska**

A lively, entertaining, and eclectic mix of one-act plays directed by advanced theatre students

Beer Girl by Walter Wykes,
directed by **Madison Wilken**

The Trip by Crystal Rhodes,
directed by **Nakia Hartley**

Faculty Coordinator: Matt Ferrell

Wildwood Park by Doug Wright, directed by **Piper Laine**

Small Things by Cary Pepper, directed by **Cameron Muccio**

The Mysteries of the Castle of the Monk of Falconara by James Armstrong, directed by **Harper Elaine Kirk**

The Lesson by Eugène Ionesco, directed by **Erica Meece**

Spring Student-Directed One-Act Festival, April 2022

Stages of Joy by John Mabey,
directed by **Haylee Green**

A lively, entertaining, and eclectic mix of one-act plays directed

The Madness of Poe devised piece with text by Edgar Allan Poe,
directed by **Eden Cook**

by advanced theatre students

The White Liars by Petr Shaffer,
directed by **Ally Baumgartner**

Faculty Coordinator: Matt Ferrell

Boy Meets Girl by Jon Jory, directed by **Ally Baumgartner**

Family Foundation by Carrington Wigfall, directed by **Carrington Wigfall**

4.48 Psychosis by Sarah Kane, directed by **Olivia Corby**

Senior Choreography Showcase, December 2021

4, choreographed by **Skyler Leary**

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

Essence, choreographed by **Caileigh Petty**

Box, choreographed by **Alysha Lane**

Faculty Coordinator: Gabrielle Tull

In Repair, choreographed by **Molly Nunn**

The Closing Curtain, choreographed by **Gracie Bennett**

Searching for Salvation, choreographed by **Madison Lapham**

Melanin' Pot, choreographed by **Ne'Miah Praise Gentry**

ALT, choreographed by **Claudine Victorin**

From Death Comes Life, choreographed by **Danielle Owen**

They Had it Coming, choreographed by **Hallyn White**

Eclectic Harmony, choreographed by **Samantha Warren**

Animal Manifesto, choreographed by **Rockii Nelson**

Student Choreography Showcase, April 2022

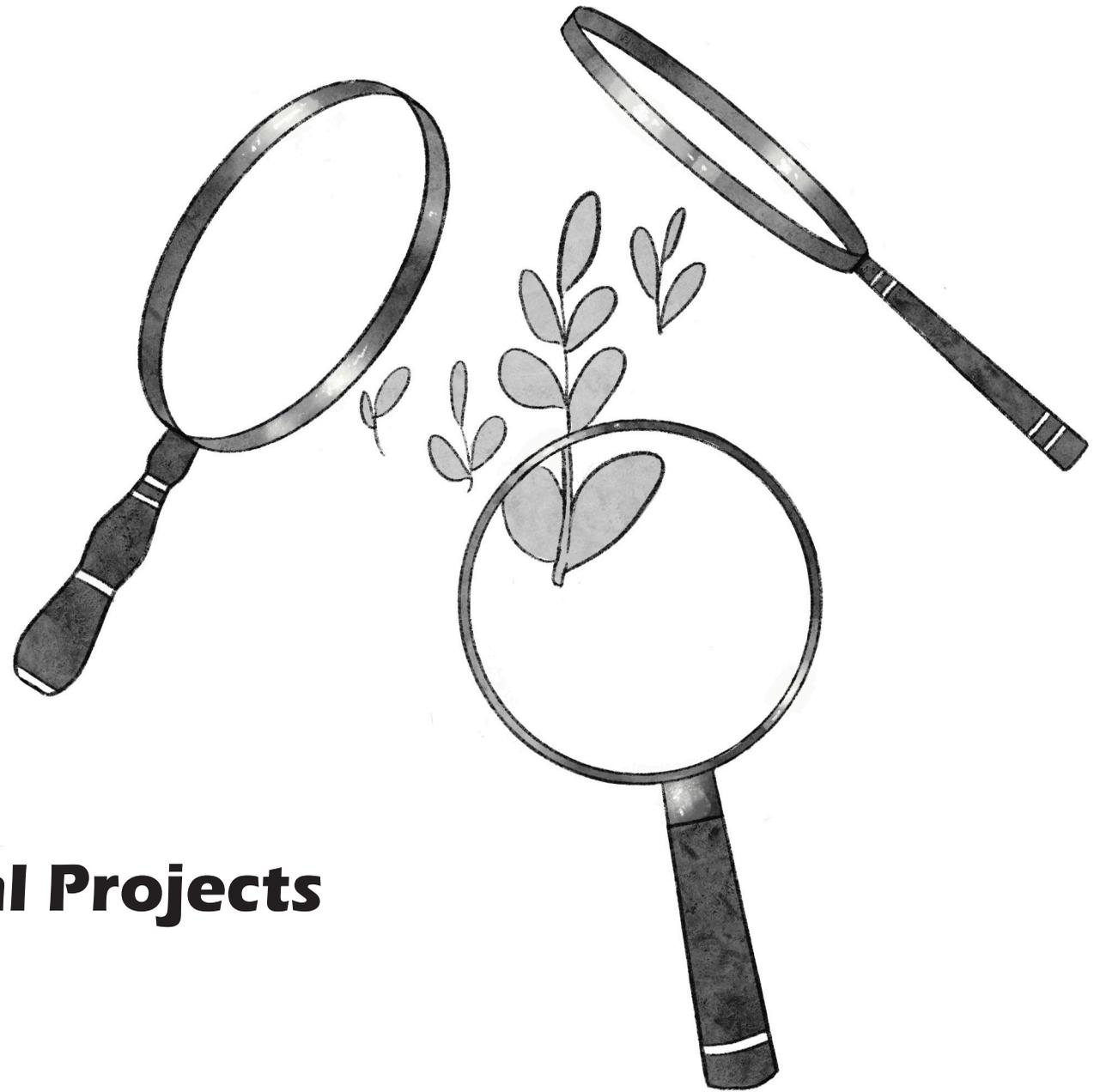
Student Choreographers:

Enjoy modern dance works choreographed by advanced dance majors.

Nakia Hartley
Jala Smith
Rachel Stevenson
Madison Syswerda
Charity Moore
Brooke Nelson
A'Vionne Richardson
Megan Smith

Faculty Coordinator: Kelly Ozust

Daphne Oliver
Kyla Smith
Justin Tillman



Additional Projects

Spiritual or Secular Leader: Innocent III

Pope Innocent III is one of the most influential and powerful popes in history. Though he lived and worked in Italy during the 1200s, Innocent influenced people across Europe and affected many people outside Christendom. Some of his changes still had an impact in the mid-1900s. Although Innocent was most certainly a spiritual leader, scholars have long debated Innocent's power as a secular leader. Should Pope Innocent III as a spiritual leader have power over secular rulers and their peoples? To better understand Innocent's actions and motivations, the purpose of this paper is to outline a clearer division between how he exerts power within the institution of the church and how he exerts power throughout the secular world. In the end, though he held the title of pope, it appears that Innocent III was not so much a spiritual leader of Europe as one of the most powerful secular leaders across Europe.

Tristan Gosnell

Mentor:
Gregory Bell, Ph.D.

CAS – History

(HIST 590 – Bell)

YMCA Livestrong

Livestrong is a program at the YMCA that allows cancer survivors to participate in a 12-week program. This program is a free or low-cost exercise regimen for individuals by a fitness instructor. The program also focuses on balance, introduction to the gym facility, different group classes and more. Survivors often receive a free membership for the duration of the program.

Keora Rogers, Vanessa Fonce, & Leana Lemon

Mentor:
Jennifer Bossi, Ph.D.

COE – Physical
Education, Sport, &
Human Performance

(EXSC 480 – Bossi)

Gestational Diabetes Mellitus in Pregnant Women

Gestational diabetes mellitus (GDM) has been an ongoing problem within our country. GDM occurs in pregnant women who don't have diabetes when their body can't make enough insulin during pregnancy. Women who have GDM are not only at risk for a variety of health problems, but their unborn fetus is also at risk for health problems. For example, their baby will be high risk for having low blood sugar, being born early, and developing type 2 diabetes later in life. For years scientists have been exploring ideas to find a prevention for GDM. One common method researchers are testing is if exercise can prevent gestational diabetes. Being overweight prior to pregnancy and having a sedentary lifestyle can be a risk factor for GDM. Based on findings, exercise does have a positive outlook on GDM. Exercise before and during pregnancy is associated with a reduction in risk for GDM. Exercise at the beginning of pregnancy decrease gestational weight gain before the mid-second trimester which lowers the risk of GDM. Women with GDM should participate in 3-4 days per week of exercise at an intensity appropriate for their heart zone. They should start at 15 minutes per session and progress to 30 minutes overtime and they should work out large muscle groups. Exercise has been proven to decrease GDM when performed at the right frequency during pregnancy. Based on current knowledge, pregnant women should participate in exercise to prevent GDM.

Keora Rogers

Mentor:
Janet Wojcik, Ph.D.

COE – Physical
Education, Sport, &
Human Performance

(EXSC 511 – Wojcik)

Exercise in Pregnant Athletes

Up until recently, it was recommended that athletes discontinue exercise during pregnancy. This can cause quite a disadvantage for female athletes and physically active females in general. This project aims to evaluate previous recommendations and add support for continued exercise in recommendations for pregnant athletes. There is still some adherence to outdated guidelines, and newer research has explored new scientifically sound guidelines. Evidence supporting exercise during pregnancy included comparison of fertility problems, health of baby at birth, and any health complications in Norwegian athletes and non-athletes and found that there was no risk to baby or mother when continuing pre pregnancy workout levels. Healthy athletes were followed from pregnancy through 12 weeks postpartum as they completed either a medium or high-intensity program and found that pregnant athletes can benefit from a high-intensity program during pregnancy. The general conclusion is to continue exercise as the athlete was doing pre-pregnancy. For example, in a marathon runner, an aerobic recommendation may look like this: Frequency- 5 days per week; intensity- 3-4 days easy pace, 1-2 days race pace; Time- 45-80 miles per week; Type- Running (cycling if there is an injury); Volume- 10,000 steps per day; Progression- 5-10% per week, less as pregnancy continues. Although early recommendations indicated women should cease exercise during pregnancy, recent research has updated those recommendations and demonstrated that not only is exercise during pregnancy safe for the athletic mother and the child, it can actually benefit both.

Morgan Bossler

Mentor:
Janet Wojcik, Ph.D.

COE – Physical
Education, Sport, &
Human Performance

(EXSC 511 – Wojcik)

Exercise Prescription for Individuals with Multiple Sclerosis

The purpose of this study was to analyze data presented in current research and information pertaining to the benefits of exercise prescription for individuals with multiple sclerosis (MS). Ultimately, it is up to healthcare providers to address exercise prescription and the benefits of implementing these behaviors because it is an effective treatment to help improve fitness, functional capacity, quality of life, and manage symptoms associated with multiple sclerosis. Exercise prescription has been proven to be effective when managing symptoms of MS. Following FITT specific principles for this population is optimal with an emphasis on resistance training. Aerobic fitness should be at least 2 d/wk; 40-70% VO₂R or HRR, RPE 12-15; start 10 minutes then increase for 30-60 min/d doing walking, cycling, elliptical, and swimming. Resistance training should be at least 2 d/wk; 60-80% 1-RM, 2 sets, 10-15 reps; 30-40 minutes a day doing Multi Joint and single joint body weight, cables, machines, free weights, etc. Flexibility training should be 5-7 d/wk; until tightness/discomfort is felt; 30 minutes a day, hold stretches 30-60 sec., 2-4 reps of static stretching. Though there is no known cure for MS, there are treatment efforts in place to help manage and control the condition. One of the treatment efforts that proves to be efficient is exercise prescription.

Terrik Johnson

Mentor:
Janet Wojcik, Ph.D.

COE – Physical
Education, Sport, &
Human Performance

(EXSC 511 – Wojcik)

Spinal Stabilization and Proprioceptive Neuromuscular Facilitation Exercise Programing on Gait and Back Pain in Lower Limb Amputees

Lower limb loss negatively affects muscle power, joint range of motion, and the efficiency of gait patterns. Alterations in gait have also been defined as a risk factor for mechanical low back pain (MLBP) in lower limb amputees (LLAs). 34 LLAs underwent a progressive 8-week spinal stabilization program. Results found significant increases in step length on the amputated leg and gait velocity. Similar results were found when 25 transtibial amputees underwent 10 proprioceptive neuromuscular facilitation (PNF) treatments. However, reduction in step length of the sound leg was significant, suggesting a more symmetrical weight acceptance. A lower back health education program was applied to a group of 20 LLAs. Subjects were taught spinal stabilization and flexibility exercises. Gait parameters were not measured, but improvement in trunk flexibility and reduction in pain and disability scores were found significant when compared to the control. Exercise frequency: 2-3 days per week Intensity: Maintain abdominal bracing through full range of motion while completing sets and repetitions, then increase intensity with movement progression. Time: 3 sets of 10 repetitions Type: Spinal stabilization or core. PNF could be prioritized when balance, asymmetry of weight acceptance and gait is a concern. Spinal stabilization exercises have shown to improve the gait of LLAs and aid in the reduction of MLBP. Both methods would prove beneficial to LLAs.

Eryn Williamson

Mentor:
Janet Wojcik, Ph.D.

COE – Physical
Education, Sport, &
Human Performance

(EXSC 511 – Wojcik)

Effectiveness of Community Wellness Programs: Girls on the Run Tri County

The purpose of this study was to learn about the goals of an established wellness program through research on the organization, get perspective of the effectiveness of the wellness program through interviews with program leaders, and learn about the education and training to work in a community wellness program. Girls on the Run Tri County is a nonprofit organization that is dedicated to creating a world where every girl between 3rd and 8th grade knows and activates her limitless potential and is free to boldly pursue her dreams through a creative curriculum that incorporates running. As a community wellness program they strive to help girls learn and develop confidence, character, care, connections, competence, and contribution. Through an interview of one of the organization leaders, we examined the challenges and benefits that this specific program faces and how they work to overcome them. Overall, 85% of the girls experienced improvement in targeted skills, more than 40% of the girls increased their physical activity, and 97% of the girls stated they learned critical life skills. Based on the impact of this specific program, it was concluded that the life skills taught by Girls on the Run Tri County have a stronger effect on girls than those taught by traditional sports or physical education programs and positively changed girls during the program and beyond.

Terrik Johnson, Alexis London, & Gil'Briana Owens

Mentor:
Jennifer Bossi, Ph.D.

COE – Physical
Education, Sport, &
Human Performance

(EXSC 480 – Bossi)

Exercise in Parkinson's disease on and off medication

The purpose of this study was to understand how Parkinson's disease medication affects the autonomic responses of individuals during an acute exercise stress test. In the other studies, we analyzed the benefits that exercise can have on individuals with Parkinson's disease. In these three literatures, data was found concluding that medication does not appear to impact autonomic abnormalities during exercise and is disease manifested. It was also found that physical exercise can benefit cofounding variables such as attention, depressive symptoms and anxiety as well as physical factors in executive functioning. In the international literature it has also been found that exercise triggers plasticity related events in the human Parkinson's Disease brain including excitation, increases and decreases in gray matter volume, and changes in BDNF levels (brain-derived neurotrophic factor). Since exercise has been proven to be an effective matter within the community of individuals with Parkinson's Disease, here is the recommended FITT specific principles for this population: Aerobic fitness should be 3 to 5 days a week, light to moderate, 30-60 minutes a day and can include yoga, swimming, or rhythmic classes. Resistance should be 2 to 3 days a week, light to moderate, 30 minutes, and appropriate for client. Strength should be 2 to 3 days a week, 40-50% 1RM, 2 to 3 hours a week, and focus on extensors. Lifestyle/neuromotor should be 2 to 3 days a week, appropriate challenges, 30-60 minutes, and can include balance, weight shifting, and reaching. Since there is no cure for Parkinson's disease, based off these literatures and other research, it is concluded that a combination of exercise and medication is recommended for these individuals.

Alexis London

Mentor:
Janet Wojcik, Ph.D.

COE – Physical
Education, Sport, &
Human Performance

(EXSC 511 – Wojcik)

Impact of Exercise on Breast Cancer

This article aimed to address how cancer-related fatigue impacts breast cancer survivors, and if exercise impacted the severity of the symptoms, as well as if it was a realistic lifestyle for them to obtain. Cancer-related fatigue is the number one symptom experienced with all forms of cancer. To do this, sixteen breast cancer survivors who experienced moderate fatigue or greater were put into a focus group interview process. The interview consisted of questions about fatigue, the barriers and facilitators of exercise through cancer and ways to improve exercise programs. This article successfully identifies the realistic ability of cancer patients to exercise, despite physical activity often being recommended. With cancer becoming one of the most deadly diseases in the country, and exercise becoming more commonly prescribed, analyzing the relation between the two is crucial for advancing medical understanding. The emphasis is placed on the qualitative data, but not recognize any quantitative data which could be useful in further understanding the research findings. The research found that participants struggled to exercise so a flexibility regimen may be the best option to start with. This could be 2-3 days a week for 10-15 minutes. Light intensity suggested heart rate under 110. This could be done in the form of Pilates, yoga, or dynamic stretching. Although participants' fatigue prevented them from exercising, despite knowing its importance, and limited them to passive activities, they did find comfort in interacting with other breast cancer survivors and felt that this motivated them to exercise more than anything.

Hannah-Grace Smith

Mentor:
Janet Wojcik, Ph.D.

COE – Physical
Education, Sport, &
Human Performance

(EXSC 511 – Wojcik)

Linguistic Security and Dialect Inclusion in Education: Equality for the Whole Student

In this paper, I discuss the impact of acceptance and inclusion of stigmatized dialects in the classroom, specifically of African American Vernacular English (AAVE). Primarily utilizing the research and articles published by Dr. Vershawn Ashanti Young, Dr. Rita Kohil, Amanda Godley, Julia Thomas, and Rebecca Wheeler, I examine how implementing an inclusive perspective of dialect in educational settings results in greater linguistic security, self-confidence, and academic achievement in students. I also discuss the negative effects of the typical Standard English-only method of instruction and how it perpetuates racial linguistic hierarchies. Terms such as 'proper' or 'professional' in the context of language use connote that there is a hierarchy of language; and if a student's home dialect does not align with what is deemed appropriate for the situation it is implied that their language is inferior. I also point to how the inclusion of dialect diversity could help to diminish the black/white student achievement gap and promote equity in learning for every student.

Jessica Prescott

Mentor:
Jo Koster, Ph.D.

CAS – English

(ENGL 507 – Koster)

Home

Home is a group of photographs, screenprints, a video, and a sculpture that draws from my experiences with my own body image. Some of the works incorporate forms from the natural world, like plants, to create a juxtaposition between the elegant ease of nature and the clumsy efforts of the human body. The works in this series offer insight into how I personally handle my thoughts of body image. The colors in some of the works are used to represent femininity, while in others they are used to create contrast. I am interested in the idea of decay and how all things decay eventually, whether they be natural or the human body. Using live plants in my sculpture demonstrates the idea of taking care of something, but also how forgetting to take care of something can result in decay. The same idea applies to our bodies, and the rest of my material represents how the body can decay if you forget to take care of it. My photographs specifically cover the idea of plants being more beautiful than my own body, which stems from a decaying of self-confidence. It's less of a physical decay and more mental. The idea is that your body can be a house, but not necessarily a home if you do not take care of it and love it.

Sophie Harvey

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

CVPA – Fine Arts

Some Things Just Aren't Meant for You

I have a fear that I will never find love. This is a fear that has stuck with me, sitting in the back of my mind, for a number of years. I have heard people offer a mix of "you'll find someone eventually" and "you don't need anyone else to be happy, you can be happy on your own!" The fear always builds back up. It's a mix of wanting to share classically romantic experiences with someone, and at the same time, equating my lack of a partner to my self-worth. This piece is a large-scale skeleton made from steel scraps. The figure is crawling on a coffee table held up by a pile of ceramic bones that are being broken under his weight. He is crawling across the table to offer his guest another cup of tea as if begging them to stay longer. The spinal cord of the figure is made of human hair, bound by string. This element represents the tradition of keeping locks of hair of loved ones after their passing. This piece reveals a genuine fear that I will die alone. Death on its own is scary, but I do not like thinking about how I might never be loved. I understand that my self-worth is not measured by whether or not I have a partner. My intentions in regards to relationships are a concern of mine, but I tend to overthink my own feelings. It's something I'm working on.

Devlin Thayne

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

CVPA – Fine Arts

The Room

The Room is a collection of work that reflects my constant inner monologue that opposes itself. The idea of escaping to my room is visualized through photography and interdisciplinary installation. I use these media to communicate that my room provides a sense of safety and paranoia simultaneously. I explore how the four walls of my intimate space or room are similar to the walls of my mind and the challenges and safety that it might yield. In my photography, I use a slower shutter speed on my camera to give my subject an anthropomorphic aesthetic. This slower shutter speed causes the subject to have a phantom appearance and speaks to the concepts of isolation and fading. This allows the viewer to feel as if there is a loss of identity and reveals the constant battle with a seemingly opposing internal self. This installation consists of multiple photographs and interdisciplinary artworks that reference the mundane things that you would see in a bedroom. These artworks are strategically placed so that the viewer navigates the space in a purposeful way. This reveals a narrative of discovering my battling psyche processing the loss of close relationships and wavering mental health. The Room is a living arrangement of work that embodies my everyday thoughts and dissociative state and reveals my struggle with feeling safe or threatened.

Ubiquity

Ubiquity is a series of spheres, varying in size and shape, made from steel that explores organic forms occurring throughout the natural world. These patterns occur throughout nature and can be seen in plants and fungi, specifically the *Clathrus ruber* mushroom, also known as the Basket Stinkhorn. The series takes over a section of a wall and appears to be continuously growing and spreading, eventually taking over the entire space. Considering both the element of the organic structures and the rapid expansion of the repeated patterns, the piece shows the true idea of what it means to be ubiquitous. By exploring these particular shapes and patterns, the work Ubiquity allows me to manipulate harsh, man-made materials such as steel to create fluid structures. When working with steel I consider the innate qualities of the material and begin to manipulate it in a way that defies this. Steel is a hard and rigid material that allows for mainly geometric structures. My work pushes steel to its limits so that the unforgiving material is changed into a structure appearing to have a more fluid movement and softer body. This idea, along with the idea of natural material and how it changes over time, allows for the creation of a unified body of organic forms.

Donya Babcock

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

CVPA – Fine Arts

Cipher

The act of physically creating art is an opportunity for me to escape briefly from the crushing weight of otherness in an oppressive society. The process of creating is a way to better understand myself and explore my experiences. For me, art is a vicious cycle. While I find comfort in making, once the work is finished, the cycle starts over again, and I have to create a new piece in order to find relief. Cartography is a key element of this series. Through map-making, I provide an inherently conceptual space where every material is deliberately chosen, has a specific meaning, and is arranged according to its purpose. These decisions manifest in my work in many ways, such as using rice as a symbol for abuse in Cipher. Coding my experiences and personal traumas is a way for me to organize and understand my thoughts while also granting me protection. My art is intricately connected to my experiences as a human, and I have to process it as an artist through performance in order to create something authentic. I work with physical representations of my trauma and then use my body as a tool to explore each space. During this process, I am able to create distance and space to view my experiences through a new lens. My performances respond to physical objects or sculptures, and the physical objects act as residual elements of my performance.

Grayce Kellam

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

CVPA – Fine Arts

Major Uncontrollable, Major Forces

The series Major Uncontrollable, Technological Forces consists of the technological hold on a person's attention and its grip on society. The series consists of four drawings and a sculptural piece placed in the center, in a near symmetrical fashion. The sculpture is my representation of a mysterious presence and the living embodiment of technology. This is presented using a humanoid face within a contained box. Lights and cords spew from the central figure, representing the power of technology and its influence on the media that we consume. Each piece is connected in a unified yet chaotic manner using the draping of cords and LED lights. These cords will drop to the floor, disrupting the space around the installation, creating an undeniable obstacle for the viewer to experience. The innermost drawings will consist of two human figures, being enveloped in a large yet complicated virtual reality headset, completely blinding them of their surroundings. This symbolizes humans' ever-growing relationship with technology. The outermost drawings will be a representation of an untouched landscape, the placement is crucial in identifying the human's nonexistent relationship with the natural world. Major Uncontrollable, Technological Forces is influenced by my personal experience with technology and its control over our lives, including my own. This work presents the clear negligence of the environment and our obsession with the constant evolution and demand for new technology.

Emily Pardo

Mentors:
Claudia O'Steen, M.F.A.
& Foozhan Kashkooli, M.F.A.

CVPA – Fine Arts

(ARTS 520 – Rouser)

Everything Is Fine

For this exhibition, my pieces explore the psychological effects of emotional and physical abuse through the medium of sculpture and performance. As an abuse survivor, I know firsthand the feelings that come from living under oppression. To express these emotions visually, I have created two steel sculptures that I interact with by placing myself inside of them during a planned-out performance. Everything is Fine is a steel cylindrical cage with sharp spikes on the inside of it suspended from the gallery's ceiling. At the base of Everything is Fine, there is a small opening for my head so that I am encapsulated by the spikes. During my performance, I place my head inside the apparatus and attempt to do daily chores such as folding laundry and sweeping the floors. For my second piece, I Just Need Some Sleep, I create a steel headpiece in the shape of a box with a pyramid on top. The inside of the work has diamond formations pointing inwards. In the performance, I attempt to take a nap with the piece on my head, showing my struggle to get comfortable surrounded by the hard cold metal. Both pieces express the struggle to exist in an abusive environment, surrounded by danger and filled with anxiety. These performances and their accompanying sculptures show the devastating anxieties that come with abuse, anxieties that are inescapable even in sleep and during the mundane tasks of life.

Kayla James

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

CVPA – Fine Arts

ABSURDUM

Belief, faith, and truth; how do we find it? We don't find it, we make it. People expect something to come to them, lead them, show them. Universal truth is a false concept. Truth is what you choose to believe. Memories, dreams, passions, and imagination paint us in the reality we choose to live in. Is this absurd? Of course it is. Life is absurd. Life is fictional. Every story is made up, even the real ones. People are living and dying simultaneously. Stories are being written and erased all at once. Birthdays are symbolic of life and a reminder of death. Old personalities must die to make room for the new. Death of the sensual is the greatest release. If all you ever do is hear you will never listen. If all you ever do is look you will see nothing. If all you ever do is wait nothing will happen.

Griffin Cordell

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

CVPA – Fine Arts

Tensions 1.1

Theoria, ancient Greek for contemplation; corresponds to the Latin word *contemplatio*, "looking at", "gazing at", "being aware of". The works I create to look and gaze upon are direct results of investigations into theoretical studies, constructs, and ideas. What I do as an artist is look at things from diverse, and often divergent, perspectives; developing/supporting/opposing theories that aid in the creation of the thing seen. More than anything though, it is experience that allows me to see this - the spark where classical theory meets modern work; where analog meets digital; where handcrafted meets laser cut. Turning classical on its head through modern digitized techniques, I take, for example, the 600 years old technique of one-point linear perspective and flip it on its head by incorporating laser cut cast acrylic; creating forms that oscillate between two-dimensional and three-dimensional, both visually and physically. In bridging the gap between analog (old) and digital (new), I explore binary couplings and the paradigmatic relations between the two elements: light and shadow, translucency and opacity, intensity and apathy, masculine and feminine.

Kai Griffin

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

Awarded Heath Merit
Award

CVPA – Fine Arts

Exercise Prescription in Youth with Type 1 Diabetes

Type 1 Diabetes (T1D) occurs when the pancreas does not produce enough insulin (beta cells, which produce insulin, are destroyed), causing hyperglycemia (high blood sugar). T1D occurs mostly in children and adolescents. In order to maintain normal levels of blood glucose, T1D patients administer insulin through an insulin pump or shot. Literature emphasizing the importance of exercise programming for T1D patients has greatly increased; however, literature is limited in exercise programming for children with T1D. One study revealed that a 12-week aerobic exercise program resulted in improved HbA1c levels (HbA1c is the average blood glucose level for 2-3 months) and peak oxygen uptake. Additionally, studies have shown that high intensity interval training (HIIT) is safe for T1D patients to participate in. T1D patients participating in either HIIT or aerobic exercise were not at risk for hypoglycemia. Youth with T1D should participate in aerobic exercise 7 days a week for part of the daily 60 minutes, doing aerobic activities that they enjoy (swimming, cycling, running, dancing, etc.). Youth should also incorporate 2-3 days of resistance training (body weight exercises 8-10 repetitions with 1-3 sets or activities such as climbing on playground equipment). Flexibility (static and dynamic stretching) and bone strengthening (activities such as basketball, tennis, etc.) 2-3 days per week. The frequency of T1D being diagnosed in youth is increasing around the world. While insulin administration plays a critical role in managing T1D, it is important to encourage youth to engage in regular physical activity.

Bethany Golden

Mentor:
Janet Wojcik, Ph.D.

COE – Physical
Education, Sport, &
Human Performance

(EXSC 511 - Wojcik)

Exercise in Dementia and Alzheimer patients

As our population continues to age, the risk of Alzheimer continues to increase in both men and women. Our physical activity levels are statistically shown to decrease as we age due to joint pain and flexibility limitations. Dementia is a chronic disorder that affects memory, thinking, reasoning in everyday life activities. Dementia patients have a restricted amount of medications or treatments, therefore the recruitment of muscle groups and neural recruitment utilizes physical exercise/activity for dementia patients. Previous research studies show that physical exercise allows for achievable, challenging, and engaging movements that benefit body memory, muscle strengthening, bone density growth, and positive mentality due to the release of hormones. Dementia and Alzheimer patients are recommended to engage in at least two days of aerobic training per week. Intensity is recommended to be moderate to vigorous with a target heart rate 40-70% with a rate of perceived exertion reaching twelve through thirteen. This aerobic training should be completed for sixty minutes while having twenty minutes a day is a minimal amount. Stationary cycling, walking/jogging, swimming, aerobic dance, seated exercises, and other aerobic exercises should be incorporated into this exercise program with professional supervision. Exercise in dementia patients allows for strengthening and aerobic based movements to enhance both cognitive and physical activity. Exercise can be utilized for an Alzheimer's patient for a treatment for independence with everyday movements, quality of life, and cognitive awareness.

Kailee Erwin

Mentor:
Janet Wojcik, Ph.D.

COE – Physical
Education, Sport, &
Human Performance

(EXSC 511 – Wojcik)

Exercise Prescription for Multiple Sclerosis Patients

Multiple sclerosis (MS) is a neuromuscular disease that causes the immune system to attack the protective covering surrounding nerve fibers. This causes MS patients to need a special exercise program to suit their needs as they need accommodations for muscle weakness, abnormal mechanics, balance problems, etc. People with MS often view exercise as something that makes their symptoms worse; however, exercise is something that can greatly increase their quality of life and function. Individualized exercise testing is necessary for prescribing exercise for people with MS but there are general guidelines to follow. It is recommended to have 2-3 days per week of aerobic training, with each session being 10-30 min long at moderate intensity (12-15 Rating of Perceived Exertion). Resistance training is recommended to be done 2-3 days per week. This is 1-3 sets of 8-15 repetitions at 60-80% of 1 Repetition Max. Flexibility is recommended for 5-7 days per week and 1-2 times per day. Every stretch should be held to the feeling of tightness or discomfort and held for 30-60s with 2-4 reps. Exercise helps reduce fatigue, manage the symptoms of MS, and boost participation in activities of daily living.

Katie Weber

Mentor:
Janet Wojcik, Ph.D.

COE – Physical
Education, Sport &
Human Performance

(EXSC 511 – Wojcik)

A Literature Review of Flexibility Training for Persons with Scoliosis

There is limited research about exercise regimens to help improve postural control in persons with scoliosis. The goal of this review is to analyze recent research in order to educate persons with scoliosis on the best flexibility training to help the curvature in their spine. Flexibility training focusing on postural strength and has great benefits for people with scoliosis. Results support that specifically Schroth exercises help improve the curve status of their spine. Schroth exercises include breathing techniques, holding the body in a standing or sitting position, and the use of exercise bands, ladders, and therapy balls. Similar results were found in a clinical trial where Schroth exercise training benefited people with scoliosis more than core strengthening. Specific exercise training focusing on postural control techniques has been the most beneficial for scoliosis. Persons with scoliosis should perform flexibility training, specifically Schroth exercises, for at least 3 days per week for 1 hour each day. For intensity, stretches should be held for discomfort and should be done with multiple repetitions. Exercises should first be taught by a professional, and then they can be done alone. Persons with scoliosis can be limited on their exercise regimen, specifically resistance training. However, flexibility training using the Schroth exercise approach can help strengthen their spine and decrease their spinal curvature.

Atley Livingston

Mentor:
Janet Wojcik, Ph.D.

COE – Physical
Education, Sport, &
Human Performance

(EXSC 511 – Wojcik)

Social Media influences on Politics for American Adults

Social media use plays an important role in shaping our political views. In this paper, we investigate how social media influences Americans' political attitudes. Specifically, we test two alternative hypotheses. First, individuals who use social media frequently can be exposed to and see more posts related to politics, giving them more opportunities to change their views on political issues than those who see fewer posts on social media related to politics. Second, because social media users are likely to be shown posts that are related to their political leaning and their personal interests due to the algorithms the social media platforms use, individuals who use social media frequently are more likely to be exposed to posts confirming their existing beliefs. By using survey datasets from the PEW Research, we test these two contrasting hypotheses. We expect that if the first hypothesis is at work, individuals using social media frequently are likely to have moderate political views and be swing voters. By contrast, if the second hypothesis is at work, we expect that individuals using social media frequently are likely to have polarized political views. We test these hypotheses by using multiple regression analyses where the dependent variables are political ideology and voting intention and the main independent variable is the frequency of social media use. We control for a potential confounder, i.e. age, because younger people are more likely to be active on social media platforms than older people and also tend to hold more liberal political ideology.

Charan Kaur & Cynthia Bruce

Mentor:
Hye-Sung Kim, Ph.D.

CAS – Political Science

(PLSC 350 – Kim)

COVID-19 and Racial Discrimination in the United States

Since the start of Covid-19, there has been an increase in racial discrimination in the United States. In this study, I examine the relationship between Covid-19 and the variation in discrimination across various ethnic groups. I hypothesize that Asian Americans are more likely to experience racial discrimination that is directly related to COVID-19 or biases regarding the outbreak of COVID-19. For example, verbal and physical violent incidents to blame for being the cause of the pandemic are likely to be more experienced among Asian Americans than other racial minorities. By contrast, I hypothesize that African Americans are more likely to experience discrimination for a systemic reason such as being more exposed to and thus being more vulnerable to the coronavirus. Using survey data compiled from the PEW research center, I conduct a series of multiple regression analyses to examine the relationship between race and the types of experiences and discrimination individuals experience during the COVID-19 pandemic, controlling for potential confounders such as gender, age, socioeconomic status, education, occupation and political ideology among others.

Kayla McKinney

Mentor:
Hye-Sung Kim, Ph.D.

CAS – Political Science

(PLSC 350 – Kim)

Discrimination Against Latinx Community during the COVID-19 Pandemic

Since the COVID-19 pandemic outbreak, there has been a substantial increase in racial discrimination against minority groups such as Black Americans, Latinx people, Asian Americans, and others. An increase in racial discrimination against the Latinx community, however, has received less attention compared to the experiences among other racial minority groups. This study, therefore, focuses on the racial discrimination against the Latinx community. In particular, using two waves of the PEW survey data (W68 and W58), I examine whether there has been an increase in racial discrimination during the COVID-19 pandemic against the Latinx community after controlling for potential confounders. In addition, I use various measures of racial discrimination during the COVID-19 pandemic as dependent variables and binary indicators of the Latinx community, Black Americans, Asian Americans, and other racial minority groups independent variables, I compare the types of discrimination the Latinx community experienced to those experienced by other racial minority groups as well as the White Americans. I expect that the findings from this study will contribute to our understanding of the different types of racial discrimination experienced by various racial minority groups.

Susana Atuncar

Mentor:
Hye-Sung Kim, Ph.D.

CAS – Political Science

(PLSC 350 – Kim)

The Global Dynamics of HPV and Cervical Cancer with an Immune Response

Cervical cancer is the second leading type of cancer in women and is often caused by the Human Papilloma virus (HPV). The persistence of high-risk HPV infection leads to precancerous lesions, which then can become malignant. Some HPV infections can be cleared by a healthy immune response. The goal of this project is to study the long-term dynamics of a system of ordinary differential equations which describes the dynamics of an HPV infection under an immune response. Using Lyapunov Stability Theory, we fully describe the long-term dynamics of several sub-models, including the disease-only sub-model and the sub-model of HPV with an immune response. In the latter sub-model, we see that the recruitment terms for an antibody and immune cell response play an important role in reducing the viral load. We conclude with numerical simulations of the full model and a discussion of biological implications with future work.

MeiRose Barnette & Jeremiah Boyd

Mentor:
Kristen Abernathy, Ph.D.

Supported by SC-INBRE grant from the National Institute for General Medical Sciences (8 P20 GM103499)

CAS – Mathematics

(MATH 311 – Abernathy)

Religion and Voting in U.S. National Elections

Identification with Christianity is often associated with Republican voting behavior in United States elections. This study aims to empirically test this relationship by using PEW survey data, which includes information on religious identity and voting behavior in United States' elections for Congress and the Presidency in the past few elections. Among the religious identities included in the survey, namely, (1) Protestant/other Christian, (2) Catholic, (3) Jewish, (4) Other Religion(s), (5) and Religiously unaffiliated, I will create a binary indicator "Christianity" that includes those identifying as Christian, Catholic, and Protestant/other Christian as a main independent variable. Among the voting intention and vote choice categories, which include (1) voting for Republican, (2) for Democrat, and (3) neither I create an ordinal variable that measures the extent to which the respondents are leaning to supporting republican as a dependent variable. A preliminary analysis shows a positive first-order relationship between Christian identity and Republican voting behavior. By using multiple regression analysis, I attempt to test whether this relationship is causal by controlling for potential confounders such as party affiliation, gender, age, race, socio-economic status, and regions among others.

Michael Suter

Mentor:
Hye-Sung Kim, Ph.D.

CAS – Political Science

(PLSC 350 – Kim)

Determinants of Voter Turnout Among African American Voters

In the US elections, voter turnout varies throughout various elections. Political parties play an important role in affecting voter turnout. Among the African American voters, however, representation and stance are also influential beyond party affiliations. In our study, we focus on the determinants of African American voter turnout. First, we will examine whether there are any factors that prevent African American voters from voting, such as threats to acts of violence. Second, we will also examine the role of representation in African American voter turnout. We hypothesize that the more election-related threats to violence African American voters experience in the run-up to the election and better representation by African American representatives, the higher are the African Americans' turnout rates. To this end, we will perform multiple regression analyses using the PEW survey research data collected in 2021.

Sasha Gray & Muluken Hass

Mentor:
Hye-Sung Kim, Ph.D.

CAS – Interdisciplinary Studies

(PLSC 350 – Kim)

Media and Attitudes towards COVID-19 Vaccination

There are multiple determinants of Americans' perceptions toward COVID-19 vaccinations. We explore how the sources of information affect the biases they form about the effectiveness of the vaccines. Using the survey data collected by the PEW research center, we examine the association between the sources of the news from which the respondents obtain information daily and the biases they have regarding the effectiveness of COVID-19 vaccines. Controlling for people's health conditions, occupations, race, gender, and other socio-demographic variables, we test (a) whether there is a first-order relationship between the media sources and the biases, and (b) whether partisanship is the confounder that drives this association. We hypothesize that it is not the types of news sources and biased information that cause individual perception toward the COVID-19 vaccination but rather partisanship biases influence people to self-select into certain partisan media as well as to form attitudes to the effectiveness of COVID-19 vaccines following the partisan opinions.

Miles Cook & Jhakeem Thomas

Mentor:
Hye-Sung Kim, Ph.D.

CAS – Interdisciplinary Studies

(PLSC 350 – Kim)

Sparking Conversation on the School to Prison Pipeline through “Pipeline” by Dominique Morisseau

The public school system is broken. The faults therein have created a school to prison pipeline in a seemingly endless cycle. The direction of Pipeline by Dominique Morisseau was a way to spark conversation of these parallels by exploring, through the perspective of a Black mother, how America's broken education system strips away the innocence of Black children. The incorporation of sound design and projection provided the audience with visual and auditory perceptions of Black children in schools and various sounds of a school day. The set was designed in a minimalistic style to further convey the lack of resources available to students who are at higher risk of being a part of this pipeline. In addition, the design was minimal to allow the audience to focus on the text provided by the playwright rather than the pieces on stage. The costume design was specific to the color palette of red, white, and blue to symbolize the stories intent to comment on the American school system. The parallels between school and prison are too overwhelming to ignore. They begin with students walking in the hallways in single file lines as inmates would travel from place to place in a prison, strict schedules are enforced in schools as prison would to instill order and control, bare classrooms with cinderblock walls resemble jail cells, and the systematic racism threatening children of color as people of color are more likely to be arrested and/or imprisoned than their white counterparts.

Kalaylah Chisolm

Mentors:
Daniel Gordon, M.F.A. & Wanda Ebright, Ph.D.
(Columbus State University)

CVPA – Theatre & Dance

(THRA 470 – Gordon)

Effects of exercise on prostate cancer

Prostate cancer is the number one cancer in men and is marked by an uncontrolled growth of cells. The prostate is the walnut sized gland in men, located below the bladder and in front of the rectum, surrounding the urethra. Some risk factors that can lead to cancer include being 65 or older in age; race such as African American, Jamaican, and African; genetics; and a diet high in animal fats. Treatments for prostate cancer include surgery, radiation, medical “watchful waiting”, and hormonal therapy. Survival at five years is one hundred percent if localized. The purpose of this literature review is to show how exercise can be beneficial to prostate cancer treatments. Aerobic and resistance training are two types of exercise that can be beneficial to prostate cancer. Exercise helps improve heart health, bone density, obesity, and reduce side effects. Adults should get at least 150 minutes of moderate intensity exercise each week. Aerobic training is beneficial because it helps expend calories to manage weight. Muscles that surround or have a common relationship with the prostate gland can become weakened due to surgery, radiation, or other treatments. Therefore, resistance training can help increase muscle mass, bone density, and decrease body fat. Exercise during treatment is safe for prostate cancer patients to increase their physical function. Prostate cancer patients should be notified about existing programs, and they should be encouraged to actively participate in regular structured exercise as part of supportive care during treatments.

Taylor Anderson

Mentor:
Janet Wojcik, Ph.D.

COE – Physical Education, Sport, & Human Performance

(EXSC 511 – Wojcik)

Effects of Exercise on Patients with Ovarian Cancer During Treatment and Post-Treatment

Ovarian cancer is ranked as one of the most detrimental cancers amongst women. Ovarian cancer occurs when DNA cells uncontrollably grow and cease function. This uncontrollable growth of cells causes the development of tumors and entering the lymph nodes which increases the likelihood of the disease spreading to the rest of the body. Ovarian cancer patients during treatment and post-treatment experience cancer-related fatigue, neuropathy, and physiological distress. These side effects impair the patient's ability to function normally and perform daily activities. However, recent studies completed have shown with the combination of chemotherapy, exercise, and cognitive therapy, patients with ovarian cancer increase their survival rate and overall quality of life during treatment and post-treatment. Various studies have demonstrated how exercise and cognitive therapy intervention increases the cancer patient's condition of life by decreasing cancer related side effects and providing tolerable management of side effects due to chemotherapy. Ovarian cancer patients should be prescribed aerobic training at least 3-5 days per week for at least 30 minutes a day at 40%-60% of their VO₂ or heart rate reserves (HRR). Exercises to be considered in this treatment recommendation include walking, running, cycling, etc. This exercise prescription provides a foundation for management of chemotherapy side effects and improves the day-to-day living aspects of ovarian cancer patients.

Madison Lapham

Mentor:
Janet Wojcik, Ph.D.

COE – Physical
Education, Sport, &
Human Performance

(EXSC 511 – Wojcik)



Eagle Stem Scholars Program

Winthrop University's Eagle STEM Scholars Program merges the campus's commitment to undergraduate research and promoting the success of students from groups that have been historically underrepresented in the sciences. Biology, chemistry, computer science, cybersecurity, 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 196 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.

2021-2022 Eagle STEM Advisory Board:

Amanda Cavin, M.Ed.

Eagle STEM Director

Clifton Harris, Ph.D.

Eagle STEM Assistant Director

Victoria Frost, Ph.D.

Biology Department Representative

Julian Smith, Ph.D.

Biology Department Representative

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Chemistry Department Representative

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Chemistry Department Representative

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Scott Werts, Ph.D.

Dalton Endowed Chair of Environmental Sciences and Studies

Tom Polaski, Ph.D.

Mathematics Department Representative

Takita Sumter, Ph.D.

Dean, College of Arts & Sciences

The following Eagle Stem Scholars submitted abstracts on their work for inclusion in this compilation:

2018 Cohort

Josiah Bauer (Mathematics)

Carlos Escoto-Diaz (Biology)

Jomar Lewis (Chemistry)

Joshua Quarles (Chemistry)

2019 Cohort

Lucas Dupuy (Mathematics)

Janae Massey (Chemistry)

Lauren Patterson (Biology)

Molly Quetel (Chemistry)

Laela Walker (Biology)

Eric Walters (Chemistry)

2020 Cohort

Ma'Liah Maddox (Biology)

Courtney Miller (Biology)

Gabrielle Walker (Biology)

2021 Cohort

Jada Fogle (Biology)

Brooke Jewell (Chemistry)

Emi Umemoto (Biology & Chem)

McNair Scholars

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

Being a McNair Scholar is a prestigious, nationally recognized honor. Scholars are actively recruited by graduate schools across the country because of their intensive research experiences and preparation for graduate study. 87% of our graduates have matriculated into graduate programs. Our alumni are currently completing PhDs at prestigious universities around the country including Alabama, California San Francisco, Emory, Florida, Indiana, Notre Dame, Vanderbilt, and West Virginia. We now have over 20 alumni with doctorates (13 PhDs).

Each year, the twelve-member Winthrop McNair Advisory Board selects new Scholars through a highly competitive application and interview process. Please visit <http://www.winthrop.edu/mcnair> to learn more.

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

Barb Yeager - Executive Support Specialist
Stephanie Bartlett - Head Writing Coach
Matt Hayes, Ph.D. - Statistics and Methods Coach
Destinee Waddy - Program Assistant (Winthrop McNair Alumna)
Amanda Cavin - Program Assistant (Winthrop McNair Alumna)
Maya Felder - Graduate Associate

2021-2022 Eagle STEM Advisory Board:

Adolphus Belk, Ph.D.

Professor, Political Science

Gerry Derksen, M. Des.

Professor, Design

Cheryl Fortner-Wood, Ph.D. (ex-Officio)

Director, McNair Scholars Program and Professor, Psychology

Victoria Frost, Ph.D.

Assistant Professor, Biology

Rose Gray, M.A., M.S.

Director, TRiO Achievers Program

Wenonah Haire, D.M.D.

Executive Director of the Catawba Cultural Preservation Project

Jason Hurlbert, Ph.D.

Professor, Chemistry, Physics, & Geology

Joanna Jackson, Ph.D.

Assistant Professor, Management & Marketing

Terrick Johnson

McNair Senior, Exercise Science Major

Willis Lewis, Ph.D.

Professor & Interim Chair, Accounting, Finance & Economics

Leigh Poole, Ph.D. (ex-Officio)

Interim Dean of University College

Tenisha Powell, Ph.D.

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

Janet Wojcik, Ph.D.

Professor and Exercise Science Program Director

Karen Stock, Ph.D.

Professor, Fine Arts

The following students completed the 2021 Winthrop McNair Summer Research Experience May 12 – July 2, with the exceptional support of their faculty mentor. Each Scholar presented their findings at the Winthrop McNair Research Symposium in conjunction with SURE. Scholars with a superscript “S” after their name also presented their research at the virtual meeting of the Southeastern Association of Equal Educational Opportunity Program Personnel in June. Scholar Carlos Escoto-Diaz completed the Harvard Summer Honors Undergraduate Research Program (SHURP).

Kenny Butler^S, Mentor: Christian Grattan, Ph.D.

Title of abstract: Sphingosine Kinase Inhibition Using Modified Variants of Sphingosine Kinase Inhibitor 1

Josie Chetnut^S, Mentor: Jeffrey Sinn, Ph.D.

Title of abstract: Predicting Economic Conservatism through Measures of Deference to Prestige and Exploitive Motives

Brooklyn Clive^S, Mentor: Jeffrey Sinn, Ph.D.

Title of abstract: Is Environmentalism a Moral Issue? Using Moral Foundations Theory and Schwartz Value Theory to Conceptualize Environmentalism in Terms of Morality

Joseph Dupuy^S, Mentor: Michael Lipscomb, Ph.D.

Title of abstract: The Moral Question of Economic Inequality

Lucas Dupuy^S, Mentor: Duha Hamed, Ph.D.

Title of abstract: The positive impacts of the COVID-19 lockdowns for students

Brandon Ellison, Mentor: Timea Fernandez, Ph.D.

Title of abstract: Fabrication of an RNA-Based Fluorescent Biosensor for the Detection of Dopamine

Leslie Facio^S, Mentor: Courtney Guenther, Ph.D.

Title of abstract: Assessing physical activity using Fitbit technology and measuring well-being following a brief breathing mediation

Nyssa Hemingway^S, Mentor: Adolphus Belk, Ph.D.

Title of abstract: A Critical Race Theory Analysis of Police Reform and Social Justice Movements

Terrick Johnson^S, Mentor: Joni Boyd, Ph.D.

Title of abstract: An Examination of the Effects of COVID-19 Quarantine on Mental Health in College Athletes

Samantha Kennedy-Scott, Mentor: Brent Woodfill, Ph.D.

Title of abstract: Pre-field and Phase 1 Survey of Tyger Village (38UN213)

Jomar Lewis^S, Mentor: Christian Grattan, Ph.D.

Title of abstract: The inhibition of sphingosine kinase using modified variants of zone 2 of sphingosine kinase inhibitor one

Jasmine Moyd^S, Mentor: Kelly Costner, Ph.D.

Title of abstract: STEM Educator Experiences During the Pandemic: Preparation vs. Effectiveness in Remote Learning Environments

Bobbie Owen^S, Mentor: Brent Woodfill, Ph.D.

Title of abstract: Contributing factors of success or failure of grassroots movements in Rock Hill

Molly Quetel^S, Mentor: Jay Hanna, Ph.D.

Title of abstract: Visible-Light Promoted Alkylation of Imines in the Presence of an Organic Photocatalyst

Lydia Rodriguez, Mentor: Katherine Knop, Ph.D.

Title of abstract: The Impact of COVID-19 and Learning Modalities on the College Experience

Savannah Stinson^S, Mentor: Mike Sickels, Ph.D.

Title of abstract: The Experience of Faculty Women of Color in White Institutions

Eric Walters^S, Mentor: Jason Hurlbert, Ph.D.

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

Office of Nationally Competitive Awards (ONCA)

Winthrop University's Office of Nationally Competitive Awards (ONCA) identifies and assists highly motivated and talented students in applying for nationally and internationally competitive awards, scholarships, fellowships, and unique opportunities, both at home and abroad. ONCA 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 recognizes 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 students learned a little more about themselves and their 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, 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.

Dr. Leslie Bickford, Ph.D.

Director

The Office of Nationally Competitive Awards
Winthrop University

2021-2022 ONCA Advisory Board:

Michael Lipscomb, Ph.D.

Honors Program Director; Professor of Political Science, College of Arts and Sciences

Norma McDuffie, M.A.

Instructor of English; Director, CHAMPS/Life Skills Program, Winthrop Athletics; Senior Woman Administrator, Winthrop Athletics

M. Gregory Oakes, Ph.D.

Acting Graduate School Dean; Associate Dean for the College of Arts and Sciences; Professor of Philosophy and Religious Studies, College of Arts and Sciences.

Ian Pearson, Ph.D.

Professor of Music, College of Visual and Performing Arts

Leigh Poole, Ph.D.

Interim Dean of University College; Director of the International International Center; Assistant Professor

Award Nominees and Winners, 2021-2022:

Alpha Kappa Alpha Leadership Fellowship

The Alpha Kappa Alpha Sorority, Incorporated®, Leadership Fellows Program began in 1979 to facilitate and provide educational and professional leadership development for undergraduate sorors. The Fellows have the opportunity to receive training sessions focused on (1) AKA Leadership Development, (2) Professional Career Development and (3) Personal Development.

Winthrop University Nominee: **Jasmine Moyd (Pending)**

Benjamin A. Gilman Critical Need Language Award

Applicants who are studying a critical need language while abroad can apply for a supplemental award of up to \$3,000, for a combined total of \$8,000. The Critical Need Language Award is competitive and offered to a limited number of Gilman scholars each year.

Winthrop University Nominee: **Logan Pender (Pending)**

Benjamin A. Gilman International Scholarship

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

Winthrop University WINNER: **Emma Crouch**

Winthrop University WINNER: **Logan Pender**

Winthrop University Nominee: **Zena Albarghsh (Pending)**

Winthrop University Nominee: **Bryanna Rhoney (Pending)**

Winthrop University Nominee: **Armon Robinson (Pending)**

Winthrop University Nominee: **Nicole Snyder-Picon (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: **Isabella Orrico (Pending)**

Winthrop University Nominee: **Jackie Carson (Pending)**

FIE Sharif Rahman Scholarship

In memory of our late Chairman and FIE founder Sharif Rahman, the Sharif Rahman Memorial Scholarship program was established in 2003 for FIE students and offers \$3000 towards the cost of studying abroad through an FIE program.

Winthrop University Nominee: **Emma Crouch**

Freeman Asia Scholarship

Freeman Awards for Study in Asia (Freeman-ASIA) provides scholarships for U.S. undergraduate students with demonstrated financial need to study abroad in East or Southeast Asia.

Winthrop University Nominee: **McKynzie Bailey (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: **Mariah Jurow**

Fulbright UK Partnership Award

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

Winthrop University Nominee: **Stephanie Bohland**

Fund Education Abroad Scholarship (FEA)

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: **Alex Baines**

Winthrop University Nominee: **Chandler Bowers**

Winthrop University Nominee: **Jaden Lemmonds**

Winthrop University Nominee: **Logan Pender**

Hope for Healing Scholarship

The Hope for Healing Scholarship is a \$5,000 offering that awards two recipients annually. The purpose of the scholarship, awarded to one undergraduate and one graduate student each year, is to encourage more of America's best and brightest to pursue a vocation in the field of addiction and mental health.

Winthrop University Nominee: **Satianna Perry-Prysock (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: **Jadden Bergholm (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: **Rachel Moan (Pending)**

National Society of Collegiate Scholars New Member Award

Each year NSCS awards \$500 scholarships to 100 outstanding new members across the country to help defray the cost of tuition. Scholarship recipients are selected based on how engaged they are as a new member.

Winthrop University Nominee: **Brianna Robinson**

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

Academic Excellence Award Winthrop University Nominee:

Lydia Rodriguez (Pending)

Dream Support Grant Winthrop University Nominee:

Lydia Rodriguez (Pending)

Financial Aid Grant Winthrop University Nominee:

Lydia Rodriguez (Pending)

United by Purpose: Equitable Leaders Winthrop University Nominee:

Lydia Rodriguez (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: **Soli Byrd**

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: **Lily Garcia (Pending)**

Phi Kappa Phi Study Abroad Award

Phi Kappa Phi Study Abroad Grants are designed to help support undergraduates as they seek knowledge and experience in their academic fields by studying abroad. One hundred twenty-five \$1,000 grants are awarded each year.

Winthrop University Nominee: **Sarah Cranford (Pending)**

Winthrop University Nominee: **Paige Lillibridge (Pending)**

Winthrop University Nominee: **Nicole Snyder-Picon (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: **Soli Byrd**

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 Nominee: **Soli Byrd (Pending)**

TEAN, The Education Abroad Network Scholarships

All students should have the opportunity to study abroad. To help make this a reality, TEAN offers a variety of generous scholarships – from \$1,000 to \$5,000 and even an annual full scholarship – to help significantly cover study abroad costs.

Full Ride Scholarship Winthrop University Nominee:

McKynzie Bailey (Pending)

Need-Based Scholarship Winthrop University Nominee:

McKynzie Bailey (Pending)

Merit-Based Scholarship Winthrop University Nominee:

McKynzie Bailey (Pending)

Diversity Scholarship Winthrop University Nominee:

McKynzie Bailey (Pending)

Tortuga Backpack Study Abroad Scholarship

The Tortuga Study Abroad Scholarship is awarded biannually to passionate students who want to explore the world.

Winthrop University Nominee: **McKynzie Bailey (Pending)**

Winthrop University Nominee: **Nathan Wheaton (Pending)**



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