Research & Creative Activity Day

Abstract Booklet

April 20, 2023

Office of Research and Sponsored Programs

Because West Chester University seeks to be a leader in local, regional, and global sustainability efforts, the Office of Research and Sponsored programs has collaborated with the Office of Sustainability to create a special designation for those Research and Creative Activity Day projects that perpetuate the health and welfare of people, economies, and the environment. Thus, all abstracts identified with *the Brandywine B* reveal the many ways that West Chester University faculty and students are helping to design, implement, evaluate, and improve a variety of environmental, social, and economic sustainability activities.

The Office of Research and Sponsored Programs sponsors an annual Summer Undergraduate Research Institute (SURI) where undergraduate scholars hone critical and analytic thinking skills to prepare for graduate-level studies or careers. SURI scholars work full time under the direct supervision of a faculty mentor for 5 weeks to complete a research project or creative activity. All abstracts identified with the SURI logo reflect SURI projects completed in summer 2022.

The Committee for Excellence in Learning and Teaching (CELT) is one of the subcommittees under TLAC that helps faculty identify engaging and innovative ways to improve their teaching practices resulting in improved student learning. Each year CELT has an open call for projects that support cutting edge practices to encourage the implementation of new and innovative projects that would not be possible without this financial support.

The purpose of the SRCA is to recognize outstanding graduate and undergraduate students who have completed original research or creative projects in collaboration with a faculty mentor. SRCA awards are presented to students who have conducted independent work that is original and substantive, given the standards and objectives of their field. Below, you will see the SRCA logo next to the outstanding student projects that were awarded this year.

WCU-CARES is a research and creative activities opportunity for undergraduate students to collaborate with faculty mentors five hours / week during the Spring semester to promote critical thinking and prepare students for a greater understanding of research and creative activity methods and outcomes. Selected students are provided a stipend to collaborate alongside their faculty mentor for an opportunity to gain valuable hands-on learning outside of the classroom.

ORAL PRESENTATION ABSTRACTS

Presentation #2 Cross-Referencing Alluvial Plains at Oxia Planum, Mars, Through Stream Network Delineation Analysis on ArcGIS Pro: A Geographic Information Systems Approach
Presenter: Elpidio Guzman De La Cruz
Faculty Mentor: Dr. Megan Heckert
Department: Geography & Planning

Previous studies at The Oxia Planum region, located on Mars, suggest topographic trends of fluvial sinuous ridges (FSRs) and the presence of clay-bearing minerals. Keeping these findings in mind, this region of interest is analyzed through application of stream network analysis geographic information systems (GIS) techniques using ArcGIS Pro. Data is exported from the JMARS software onto ArcGIS Pro for evaluation. The analysis and results reinforce the presence of fluvial patterns at the FSR regions of the Oxia Planum basin. The analysis furthermore provides with an extensive trend of the fluvial pattern that can be utilized for potential areas of interest by the ExoMars mission.

Presentation #3 Seeing As and Seeing Differently - Exploring the Intersection between Professional Vision and Teacher Leadership
Presenter: Dr. Brett Criswell
Department: Secondary Education

Teacher leadership has the potential to empower teachers and support positive change in school systems. Several reviews of the teacher leadership literature, though, have questioned the extent to which the field understands the process of teacher leadership development. A multi-institutional, longitudinal research project examined eight teacher leader programs to attempt to fill in this gap. As part of the team's analytical work, the role of professional vision in teacher leader development -- and, vice versa, the part that teacher leadership activity plays in professional vision evolution -- was examined. I will be sharing the analytical framework our team developed and some of our initial findings from using this framework. Those insights include important insights about how professional vision both affected and was affected by the teacher leaders' work during the pandemic. Further, we garnered understandings about the way professional vision mediated teacher leaders' recognition of and response to issues of equity. There was a surprising finding concerning the aspects of professional vision that the teacher leaders most often exhibited that will be discussed as well. All of these findings have implications for both research and professional learning, and the presentation will end with a description of these implications.

Presentation #4 Environmental Racism: A Review of Environmental Justice Prevalence and Policy in Pennsylvania
Presenter: Dana Pratt
Faculty Mentor: Dr. Stevie Grassetti
Department: Psychology

Environmental racism is defined as, “the disproportionate impact of environmental hazards on people of color.” (greenaction.org,). While this topic is gaining national attention, specific information is needed to guide policy change at the local level. The effects of racism and the climate crisis often walk in parallel lines throughout history. The erasure of BIPOC history is often as silenced as the current damage being done to the climate, both instances causing permanent, intergenerational damage. The current study presents a systematic review of all existing literature on the topic of environmental racism in Pennsylvania that has been published in the last 10 years. All literature was collected through an article pull and screen of terms associated with EJ such as environmental racism, environmental discrimination, Philadelphia environment, and other terms associated with disproportionate impacts to collect the articles ultimately used in this paper. The review suggested that environmental injustice is prevalent in both rural and metropolitan communities in Pennsylvania and has affected the health of people, especially those that are socially and politically minorities. Future research should focus on a more intersectional approach to thoroughly examine the intersections between race, ethnicity, ability status, multiple indicators of socioeconomic status (wealth, education, etc.), and gender to form a more detailed understanding of how environmental injustice impacts the communities in Pennsylvania.

Presentation #6 The Black Male Educator Experience
Presenter: Imere Williams
Faculty Mentor: Dr. Jacqueline Van Schooneveld
Department: Early & Middle Grades Education

Black male educators are the biggest minority in education, yet they yield an extraordinary impact in the field. Education experts suggest through a plethora of research that the presence of a black male educator has a huge, positive impact on students, especially students of color. This is by means of how they invest in their education. Education experts, social activists, and students throughout the United States continue to advocate for the increase and retention of black male educators. As Black and Brown students across the nation continue to be victimized by systemic racism and discrimination in schools, the demand for black male educators heightens. This research currently examines the experiences that black male educators who have held instructional positions face and what educators can do to address these experiences.

Presentation #8 An Examination of the Predictive Validity of a Measure of College Admissions Applicants' Attributions of Success and Failure
Presenter: Joseph Paris
Department: Admissions

Upon the advent of the COVID-19 pandemic, hundreds of higher education institutions in the United States temporarily or permanently adopted test-optional admissions policies. Growth in the number of test- optional institutions and the longstanding criticism of standardized admissions tests as limited and unreliable predictors of college success have led to the use of broader criteria in the college admissions process. Despite the practice of holistic admissions, much of the variance in college outcomes remains unexplained by admissions criteria. Among the potential predictors of postsecondary educational promise are applicants' causal attributions of the behaviors and events they experience within their environment. Guided by attribution theory of motivation, my co-author and I examined the predictive validity of a measure of 855 admissions applicants' causal attributions of success and failure. The measure, composed of four short-answer questions, was administered as part of a test- optional admissions policy at a large urban research university in the United States. Using hierarchical logistic and linear regression, we find that the measure is valid for use across student subgroups. The attribution score derived from the measure makes a statistically significant but nominal contribution to the prediction of four-year bachelor's degree completion. We also find that the attribution score does not make a statistically significant nor practical contribution to the prediction of cumulative undergraduate grade point average and five-year degree completion. We offer recommendations for higher education and enrollment management professionals and directions for future research.

Presentation #9 Learning with Games: Engaging a mobile-centric community of learners
Presenter: Dr. Mahmoud Amer
Department: Languages & Cultures

This presentation showcases a game-based learning platform (www.vocabee.org) designed to engage a mobile-centric community of learners. The platform transforms mobile devices into active problem-solving and knowledge base learning tools. The platform utilizes these devices to search and research information through competitive gameplay. Gamified learning, in essence, reflects problem solving approaches to creating class learning activities (Schell, 2008; Rapeepisarn, Wong, Fung, and Khine, 2008; Chiu, Kao, and Reynolds, 2012). Not only does gamification create a laid-back learning environment where learners are willing to take risks, become motivated (Ryan et al, 2006), but it also provides meaningful interaction and deeper connection with concepts (Gee, 2005). Gamified learning, especially when paired with activities that use technology to cultivate and exploit connected networks of information for problem solving, helps learners develop critical thinking skills by identifying and filtering information to create solutions to problems and evaluate their effectiveness (Mundie and Hooper, 2016). As such, learners become agents in the process of their own learning and for supporting their learning goals. According to Burke (2014), Gamification creates entirely new engagement models, targeting new communities of people and motivating them to achieve goals they may not even know they have (p. 4).

Presentation #10 Reimagining Literacies in the Digital Age: Multimodal Strategies to Teach with Technology
Presenters: Dr. Pauline Schmidt & Dr. Matthew Kruger-Ross
Departments: Secondary Education & Educational Leadership

Living in a multimodal world can be overwhelming. To prepare students to produce and consume the diverse texts made possible through innovative technologies, we advocate for a slower and more deliberate approach to thinking and planning for teaching literacies. They showcase how technologies can expand, enhance, and inspire the consuming and producing powers of secondary students by examining visual and aural literacies before multimodal literacies.
As teacher educators and Notorious Pedagogues podcasters, we share our vision of technology in the literacy classroom, highly influenced by the pandemic-fueled need to embrace remote teaching. Each chapter begins by connecting its topics to a section theme and contextualizing the topic in a way that makes it easy for readers to understand its connection to the overall purpose of the text.
This presentation will focus on the book we just published with NCTE this fall. Both reflective and practical, our book also includes: critical lessons and reflections about secondary teaching; voices and materials of practicing and preservice teachers, via QR codes; explanations of how the technological examples represented best exemplify specific literacies; and information for preservice and early career teachers, as well as seasoned classroom professionals.

Presentation #11 Taking Employment Seriously
Presenter: Dr. Larry Udell
Department: Philosophy

The philosopher John Rawls assumed that a well-ordered society would involve "reasonably full employment in the sense that those who want to work can find it. While an apparently reasonable assumption at the time of publication of his _A Theory of Justice_, when government fiscal policy took full employment as a legitimate goal, the advent of so-called "supply side economics" rejected this aim. Consequently, his theory did not identify involuntary unemployment as unjust. I offer an amendment to the theory that addresses this that addresses this omission and argue that Rawls would endorse this amendment had he lived until 2008.

Presentation #12 The NICE Program
Presenter: Grace Montgomery
Faculty Mentor: Dr. Angela Guerriero
Department: Music Therapy

For the past four years, West Chester University Concert on the Quad " lent a welcoming hand to people on campus and in the West Chester Borough. However, the 2022 event went a step further by centering inclusivity as its main focus. Although research shows the benefits of community music events for individuals with disabilities, they are often left out of art-related activities due to their disability. Even if the individuals can participate, the environment often does not accommodate their specific sensory needs. WCU music therapy student, Grace Montgomery, and music education student, Brian Lynch, worked with Dr. Angela Guerriero, Music Therapy Program Director, to improve the concert experience for attendees with disabilities. Through their efforts, the event on May 5, 2022 provided sensory-friendly accommodations to all attendees such as stimulating squishy toys, designated quiet areas, therapy dogs, and clear directions. The event not only benefited the local WCU community but now serves as a blueprint for future events incorporating inclusive practices. As a result, the N.I.C.E. (or Neurodiverse Inclusive Campus Events) committee was formed, along with a dedication to sustainable practices. Following the concert, Grace and Brian utilized qualitative and quantitative research methods to learn more about the experience of concertgoers at the N.I.C.E. Concert with virtual surveys and semi-structured Zoom interviews. After collecting information from participants, the preliminary results offered positive feedback on the event and encouraged the organization and implementation of future N.I.C.E. events at WCU and beyond.

Presentation #13 Prioritizing equity in academic spaces: An urban campus's resource pantry journey
Presenters: Ryan Scott & Melanie Hagerty-Griffin
Faculty Mentor: Dr. Brie Radis
Department: Social Work

Although there has been more focus brought to the issue of food insecurity on college campuses in recent years, there is still not enough being done to support students who are on campuses that do not have resource pantries. This need is further exacerbated when we look at student population trends nationwide and see adult learners make up most of the general student population. This is especially significant as these students typically face even more barriers to college completion compared to that their traditional student cohort. On the issue of food insecurity alone, we see non-traditional students are even more likely to be food insecure and as a result oftentimes have lower GPAs, lower rates of course completion, and have more withdraws from classes than their traditional-aged classmates (Beam, 2019). This research presentation will be with two students about the needs assessments for the development of the WCU Philadelphia resource pantry.

Presentation #16 Using Project-Based Learning to Improve Teacher Candidate Preparedness for Classroom Application
Presenter: Dr. Crystal Loose
Department: Early & Middle Grades Education

During the COVID 19 Pandemic college classrooms became remote and this caused a shift in typical fieldwork. Prior to this, students at WCU in course EGP 209 observed children in early learning centers as part of their early field experiences. To compensate for the lack of observation placements, I created videos to expose students to child development theories in action. Videos and instructional PowerPoints were placed on Wakelets for students to analyze and apply to projects. The Wakelets contained presentations about topics pertaining to child development as well as videos of children and instructors demonstrating the content. The Wakelets and Projects were piloted in the Fall of 2021 as my colleagues, and I recognized the importance of shifting our classroom practices to include Project-Based Learning (PBL) so first-year teacher education students in our child development course would have experience with PBL needed to implement it effectively in their future PreK-Grade 4 classrooms. From this PBL assessment pilot, we found that PBL provided students opportunity to have choice, to explore content in deep and meaningful ways, and to demonstrate learning creatively and deemed it as an effective teaching and assessment strategy for all learners.

Presentation #17 Nutrition-Related Issues for Transgender and Gender Non-Conforming Populations
Presenters: Stavroula Xinos & Ian Amidon
Faculty Mentor: Dr. Liam Lair
Department: Women's & Gender Studies

It is well documented that transgender and gender non-conforming (TGNC) populations experience barriers to health care and have lower rates of access to healthcare services compared to cisgender populations. TGNC populations also have higher than average rates of disordered eating. Thus, it is critical that healthcare institutions increase accessibility to nutrition education for TGNC populations. Nutrition education can take the form of individual nutrition counseling, small group educational workshops, or other forms of community outreach that focus on preventative healthcare or interventions for acute nutrition-related conditions like malnutrition, micronutrient deficiencies, diabetes, or disordered eating.

West Chester University student researchers Stavroula Xinos of the Women's and Gender Studies Department and Ian Amidon of the Nutrition Department, through the support of WCU-CARES, are conducting research throughout the Spring 2023 semester to identify nutrition-related issues and concerns within TGNC populations, the accessibility of relevant healthcare services to the target population, and the perceptions towards healthcare providers within the target populations that result in trust or mistrust of healthcare professionals overall. This will inform the design of future interventions aimed at increasing access to nutrition-related healthcare services like nutrition counseling by TGNC folks and highlight potential barriers to these services. These barriers may include a lack of cultural competency on the part of Registered Dietitians, non-inclusive services, or the perception of healthcare workers as untrustworthy by TGNC individuals. It is the hope of the researchers to advance health justice through this project.

Presentation #18 The Boy's Search for Meaning: An Analysis of Grief Responses in the hit Amazon show *The Boys*
Presenter: Connor Mears
Faculty Mentor: Dr. Lynn Zubernis
Department: Counselor Education

This application is to recognize the contributions of the above applicant in the creative endeavor of writing a chapter that analyzes psychological themes displayed in the Amazon Prime television show The Boys. The chapter is to be included in a book, edited by the mentor of this application, that encompasses a full anthology of the series which includes interviews with the actors and writers of the show among other analytical essays aimed at elucidating the depth of the characters, story, and fictional world. The series is rich in social commentary and universal human struggles that make it a dream to write about from a counselor's perspective. This application presents the value of fictional stories, an overview of the show, the focus and structure of the chapter written and its impact and relevance to potential readers and consumers and to the growth and development of the author himself.

Presentation #19 Tell Me Your Story: Utilizing Photovoice to Explore the Journeys of First-Generation Graduates
Presenter: Christina Williams
Faculty Mentor: Dr. Heather Schugar
Department: Educational Leadership & Higher Education Administration

This study examined the undergraduate journeys of first-generation college graduates. The methodology photovoice was utilized by three participants which provided data that consisted of participant photographs and narratives that gave insight into their journeys to college completion, barriers to their success, and factors that contributed to their success. The three participants shared their journeys and reinforced that first-generation students utilize their community cultural capital to complete college and identified key themes that contributed to their success and hindered their success. This study deepens our understanding of the importance of utilizing a strengths-based lens in understanding, supporting, and examining first-generation students and challenges the deficit lens often used by higher education professionals.

Presentation #20 The Role of the College Union on Fostering a Sense of Belonging on a College Campus
Presenter: Adriane Reilly
Faculty Mentor: Dr. Orkideh Mohajeri
Department: Educational Leadership & Higher Education Administration

This qualitative study aims to explore the essence of undergraduate student belongingness in the college union. Using a conceptual framework that included campus ecology framework (Strange & Banning, 2001) and sense of belonging theory (Strayhorn, 2019), the purpose of this study is to elucidate the essence of undergraduate student belongingness in the college union. Particularly, this study focuses on a college union located on the campus of a public, regional university in the mid-Atlantic region of the United States. Further, this study aims to explore the variety of ways that the union's physical space does (or does not) influence sense of belonging for a diverse sampling of undergraduate students. Undergraduate college students are invited to participate in two interviews, including a photo elicitation activity. The first interview establishes students' relationship with the college union building and their understanding of sense of belonging. The second interview begins with a photo-elicitation activity that asks participants to capture images of areas in the college union in which they feel belonging and areas in which they did not feel belonging. Analyses of data may reveal themes connecting sense of belonging with physical aspects of the college union spaces. The researcher plans to integrate the photographs and interview quotations to share the study findings. To conclude, the author will use the participants own words to suggest ways for college union professionals to design and maintain facilities that enhance sense of belonging.
Keywords: *college union, sense of belonging, campus ecology, photo-elicitation*

Presentation #21 Equitably funding trauma informed policy: A critical analysis of the distribution of the 2019-2020 Pennsylvania Commission for Crime and Delinquency School Safety and Security Grant
Presenter: Heather Bickley
Faculty Mentor: Dr. David Backer
Department: Educational Leadership & Higher Education Administration

Students from low income urban communities report higher rates of traumatic experience than the general population (Carter et al., 2020, p. 11). Students from low income communities have also been impacted by the historic inequitable distribution of resources, including school funding (Ladson-Billings, 2016, p. 5). The state has made attempts to address inequities in both rates of traumatic experiences and school funding. Twice in the last twenty years Pennsylvania has unsuccessfully attempted to rectify the school funding inequity, first with the costing out study of 2006 (Lapp, 2019) and again in 2015 with the creation of the Basic Education Fund Commission (Brandon, 2021). In 2019, the Pennsylvania State legislature passed Act 18 establishing requirements for schools to implement trauma informed education practices and offering a meritorious and competitive grant (Ramsey & Meyers, 2019).

This research questions whether or not school districts are requesting funds from the Pennsylvania trauma informed policy's School Safety and Security Grant for the implementation of trauma informed policies, and once awarded, whether or not the funds are being distributed equitably, reaching historically underfunded school districts. The purpose of the study is to analyze the grant's funding distribution to identify if the funds can be applied as reparation towards the education debt owed to historically underfunded schools while at the same time providing policy, guidance, and support for schools to implement trauma informed practices.

This study is a critical policy analysis following a transformative paradigm that emphasizes social justice (Mertens, 2010, p. 470) and creating social change (Mertens, 2007, p. 214). Data will be collected and analyzed using a mixed methods convergent design with a Quantcrit lens (Diem & Brooks, 2022; Garcia, Lopez, & Velez, 2018; Gillborn et al., 2018, 169-172). To test the hypothesis various regression tests were used to analyze the relationships between school district socio-economic demographics and the grant distribution. Additionally, a survey was sent to the 500 Pennsylvania superintendents. The research is currently in the testing phase and the results are still being analyzed. This will be updated when the research is completed.

Presentation #22 Does a 6-Week Targeted Strength Training Protocol Reduce Injury Risk in Recreational Runners?
Presenter: Douglas Kramer
Faculty Mentor: Dr. Ken Clark
Department: Kinesiology

Distance running has one of the highest injury attrition rates among common recreational activities. Coupled with the fact that strength training is often underutilized, overuse injury development is a common problem for this population. This thesis study investigated whether a targeted strength training program was effective at attenuating kinematic risk factors associated with overuse running injuries. Previous literature identified specific pathological kinematics to be associated with lower extremity overuse injuries. These kinematics included increased peak hip adduction, hip internal rotation, knee internal rotation, knee stiffness, and contralateral pelvic drop during the stance phase of gait. The muscles specifically targeted in the strength training program were the gluteus maximus and medius, quadratus lumborum, and hamstrings. These muscles were targeted because they act as dynamic bracers against the aforementioned deleterious kinematics. Therefore, strengthening these muscles should result in improved kinematics and subsequently lower injury incidence. 19 recreational runners participated in this study. Strength measurements and slow-motion video were captured to view changes in strength and kinematics over the course of six weeks. Participants were matched based on strength scores and randomly assigned to either a control or experimental, lifting group. Following the six-week intervention, participants again had their strength and gait assessed. Results are currently being analyzed and will be complete in the next four to six weeks. Results are expected to show an increase in strength in the experimental group. This study hopes to answer whether altered running kinematics can be realized through strength training alone which is currently debated.

Presentation #23 Patterns of trauma exposure and PTSD symptoms among firefighters and paramedics
Presenter: Leah Siwinski
Faculty Mentor: Dr. Michael Gawrysiak
Department: Psychology

First responders are exposed to highly stressful and traumatic events often considered to be outside the range of normal human experiences (DSM-5, 2013). It is estimated that the prevalence rate of Post-Traumatic Stress Disorder (PTSD) amongst first responders ranges from 3.9% (Dudek & Konierak, 2000) to 32% (Walker et al., 2016) when compared to the 6.8%-7.8% prevalence rate in non-first responders (Kleim & Wetsphal, 2011). While firefighters and paramedics fall under the label of first responder and acknowledging that both occupations have a high degree of job role overlap, the specific duties of single role paramedics and single role firefighters are significantly different. These differences suggest that a first responder's primary role may lead to different traumatic experiences and responses. This in turn, may result in distinguishable patterns of PTSD symptomology. Few studies have attempted to differentiate the levels of PTSD and distress between firefighters and paramedics (Petrie et al., 2017; Wagner et al., 2020). The current study aims to compare self-reported traumatic event exposures in fire fighters and paramedics in order to determine if there is a correlation between traumatic exposures and satisfaction within each type of profession. In order to gain insight into the effects of trauma on firefighters and paramedics, this study has utilized multiple assessment tools, including the Post-Traumatic Stress Disorder Checklist (PCL), the Life Events Checklist (LEC-5), the Professional Quality of Life Scale (ProQol) and the Brief Trauma Questionnaire (BTQ) to quantify patterns of trauma in each first responder subgroup as well as their reported job satisfaction with that position. Statistical analysis of these self-reports involved as series of independent samples t-tests, Pearson's r correlations, and regression analyses. The current study predicts that more frequent self-reported traumatic exposures will be associated with lower levels of compassion and job satisfaction and that those working primarily in the role of paramedic will have higher levels of self-reported PTSD symptoms and experience more distress than those working primarily in the role of firefighter. The results of this work attempt to add to a limited body of literature dissociating the patterns of trauma experienced by specific first-responder roles, in an attempt to influence the efficacy and specificity of approaches to treating this trauma.

Presentation #24 Shared Responsibility, Mutual Benefit: A Narrative Inquiry into a Community Engaged Learning Experience
Presenter: Sara Mohler
Faculty Mentor: Dr. Sarah Lightner
Department: Literacy

The Readers Rising Community Coalition (RRCC) is a collaboration between university faculty and community-based programs serving families who have historically been at-risk for literacy underachievement, including low-income families, families of color, immigrant and non-English speaking families, and court-adjudicated youth. Through this program, WCU preservice teachers in a foundational literacy course complete a 10-hour community engaged learning experience in a service-learning model, which benefits not only the preservice teacher, but the community partner and the children served at each site. This project utilizes interview data to create a narrative of this program, documenting its unique ability to address the needs of multiple stakeholders across the community engagement program. Through this narrative, understandings emerge regarding how different stakeholders within this project form relationships with one another, contribute to a sense of shared responsibility, and make sense of their experiences and learning.

Presentation #25 Ambiguity and Authorship within the Alexiad
Presenter: MacLaren Remy
Faculty Mentor: Dr. Tia Malkin-Fontecchio
Department: History

The Alexiad, written in the 1140s, documents the life and reign of Emperor Alexios I as told by his daughter and Byzantine princess, Anna Komnene. Many consider this work to be a first for female historians. However, past male historians, such as Choniates, Gibbon, and Howard-Johnson, were critical of the Alexiad as history and Anna as an author. Edward Gibbon even claimed that the Alexiad "betrays the vanity of a female author."1 James Howard-Johnson has also asserted that the Alexiad could not have been written by Anna alone because of the shifting authorial voice and military acumen. 2 These authors discredited the notion that a Byzantine princess could have the education and knowledge to author such a history. They disapproved of the inclusion of female sentiments and memories. For these same reasons, modern historians, such as Leonora Neville, have instead used it as a window into Byzantine gender dynamics. Anna Komnene's intentional oscillation of authorial voice is at the core of these viewpoints. Because of the gender roles in her society, Anna strategically switched between writing as a "male" or historian and as a devoted daughter and proper woman; this principle is also called code-switching. Anna used classical figures and allusions to prove that she was educated and qualified to write a history of war and politics. However, since the 'protagonist' of the Alexiad is Anna's father, Emperor Alexios I, her own life appears on the page, making the Alexiad a memoir and epic poetry. This research examines the authorial choices and the societal constraints on Anna Komnene by applying the growing understanding of gender within Byzantium broadly and a modern lens of gender. It explores how Anna traversed the space between masculine and feminine authorial voices to ensure Alexiad's acceptance within academic circles. Revisiting interpretations of history, especially of marginalized figures, allows us to parse out past preferences and reevaluate with new, relevant scholarship the presence of women in academia and cultural relativism.

Presentation #26 Identifying Novel Intracellular Pathogen Response (IPR) Triggers by Intestinal Wounding in Caenorhabditis elegans
Presenter: Adrian Alvarado
Faculty Mentor: Dr. Jessica Sowa
Department: Biology

The development and maintenance of immune responses to various stressors are crucial to organismal survival. The Intracellular Pathogen Response (IPR) is an immune response that serves as a defense mechanism in Caenorhabditis elegans against stress and pathogens. Currently, viral infection, proteasome, and heat stress are known triggers of the IPR. However, evidence from our lab has shown that intestinal wounding via feeding C. elegans ethanol triggers IPR gene upregulation. As a result, we hypothesize that intestinal wounding may be a separate branch of the IPR activation pathway. However, what induces and characterizes this pathway is currently not known. Through our analysis, we have identified 6% ethanol as a novel intestinal wounding method that causes IPR induction and is a candidate to be applied in a high-throughput manner to facilitate genome-wide screening.

Presentation #27 Characterizing the infection dynamics of a novel nematode virus variant
Presenter: Sehrish Khan
Faculty Mentor: Dr. Jessica Sowa
Department: Biology

The model organism Caenorhabditis elegans is a nematode that is commonly used to study the interactions between pathogens and host innate immunity. One branch of the C. elegans innate immune system is the Intracellular Pathogen Response (IPR). The IPR is a transcriptional response that is activated in response to Intracellular pathogens, such as viruses, entering the cells. To date, there is only one virus that is known to naturally infect C. elegans, the Orsay virus. In an effort to identify novel viruses, wild nematode samples were collected from the Netherlands and screened for infections that could be transmitted to C. elegans. In this process, a putative virus (V2) was discovered. RNA sequencing revealed that V2 is likely a new variant of Orsay. In order to compare the infection dynamics of V2 to standard Orsay, a 72-hour infection time course was run by infecting N2 C. elegans with V2 and Orsay in parallel. The viral transcript and IPR activation levels from each time point were quantified using RNA extraction, cDNA synthesis, and qPCR. The amplification plot and melting curve yielded inconclusive results. Future studies will investigate the tissue tropism of both viruses using FISH. Further studying these two viruses could lead to a better understanding of the genetic factors that influence infection dynamics.

Presentation #28 Perceptions of Barriers and Facilitators to Seeking Mental Health Help in Student-Athletes: A Mixed-Method Pilot Study
Presenter: Margaret Hunt
Faculty Mentor: Dr. Lindsey Keenan
Department: Sports Medicine

The NCAA issued a survey to more than 37,000 student-athletes; a quarter of respondents reported feeling sadness and a sense of loss, and 1 in 10 reported feeling so depressed it has been difficult to function (NCAA, 2020). These studies developed by the researchers examined the validity and reliability of the Perceptions of Barriers to Seeking Mental Health Help in Student-Athletes (PBaS-MH) and the Perceptions of Facilitators to Seeking Mental Health Help in Student-Athletes (PFaS-MH) surveys in college student-athletes, as well as determine predominant barriers and facilitators they experience with seeking mental health help. A convergence mixed-methods research design was conducted to triangulate results. The surveys were given to 550 student-athletes at one university during scheduled team meetings. A total of 312 (56.7%) completed the quantitative portion, while 277 (%) completed the qualitative portion of the surveys. Qualitative analyses revealed awareness was the predominant theme when it comes to mental health literacy. The predominant barrier themes were Self, Accessibility and Stigma, while the predominant facilitator themes included Accessibility, Community, and Confidentiality. The PBaS-MH and PFaS-MH both demonstrated excellent reliability, α=0.924 and α=0.960, respectively. and with one factor (eigenvalue = 9.685) that explained 32 percent of the variance and (eigenvalue = 14.429) that explained 48 percent of the variance respectively. The development of this survey is the first step towards accessing mental health barriers and facilitators in student-athletes but further research needs to be done.

Presentation #29 Advancing Affirming Queer Practice: Creating a Queer Competent Taxonomy
Presenter: Hannah Dickey
Faculty Mentor: Dr. Kerrie Ocasio
Department: Graduate Social Work

Discrimination against LGBTQ+ people in medical and clinical settings is common. While facing intolerance from providers, queer people also experience structural inequality via multiple health disparities compared to the general population. To combat LGBTQ+ inequity in practice settings, significant institutional resources have been allocated to increase queer cultural competency (QCC) among providers through implicit bias and educational training. Measurements of QCC and bias shifts from provider training are largely based on self-reports and lack evidence which suggests substantive queer competency. Rather, queer client perspectives suggest that despite the breadth of institutional training, problems of discrimination and stigma from providers continue. QCC guidelines exist, however, the extent to which these provide comprehensive and current recommendations is uncertain, as well as the degree to which evaluation of practice employs the guidelines. This study created a taxonomy of queer culturally competent care to better understand the evidence that exists for best practices in the field and to identify gaps in the existing research.

A scoping review was conducted to identify existing guidelines with a national reach and potential gaps in guidelines for practice. Searches were conducted via PsycINFO, EBSCOhost, Google Scholar, and Google (for gray published guidelines). Search criteria were developed through an iterative process to identify relevant terms, which included 'queer clinical guidelines', 'queer health disparities', 'LGBTQ+ patient experiences', 'discrimination in healthcare settings', and 'LGBTQ+ provider training.' National organizations focused on clinical standards or queer service needs were specifically identified and searches of their web resources were conducted. We used a qualitative coding process to identify themes regarding practice domains. Specific practice recommendations were compiled related to each domain. Guides were then reviewed to identify whether they included specific practice recommendations. We created a taxonomy to organize findings, which allows research gaps, practice settings, and client populations to be easily represented.

The Queer Competency Taxonomy includes the following domains: (1) paperwork and administrative communication is safe and inclusive of LGBTQ+ culturally specific language, (2) physical spaces are reflective of safety for queer people, (3) interpersonal skills and practitioner communication during provider-patient interactions, and (4) practitioner psychological processes. A review of existing practice directives and literature on LBGTQ+ patient experiences indicated problems with outdated terminology, a lack of comprehensive guidelines, and limited recognition of the importance of gender and sexuality to overall wellness. Further, a review of the literature suggested a fifth domain is needed to address the specific needs of queer clients, such as addressing gender-affirming care and mental health services unique to queer life experiences. The review also indicated that QCC may generally focus on safety and lack of offense, suggesting the need to elevate standards to be inclusive and affirming of the identities of queer clients. The Queer Competency Taxonomy fills an essential gap in current research on QCC. It can also be utilized across medical and clinical settings to inform practitioners of the most updated QCC practices and provides a tool to develop specific evaluation measures of QCC in service systems.

Presentation #30 Intergenerational Transmission of Gendered Play Practices
Presenter: Emma Harris
Faculty Mentor: Dr. Stevie Grassetti
Department: Psychology

Play is one way that parents socialize children into gender roles. This study tested hypothesized intergenerational links in play practices and generational differences in gender role attitudes. Based on past research, we hypothesized that 1) young adults would report higher acceptance of feminist labels than their parents, 2) young adults would support more flexible play "non-gendered" play than their parents, and 3) there would be an intergenerational link in how parents played with their children and how their grown children plan to play with their own children. Participants (N=146) were 73 dyads of college students and their parents who completed surveys measuring gendered play experiences and gender role attitudes. Paired samples t-test supported hypothesis 1 as young adults reported higher feminist beliefs compared to their parents, $t(72)=2.043$, $p=0.045$. Another paired samples t-test contradicted hypothesis 2 as there was a significant generational difference where parents reported higher flexible play plans for daughters than their grown children did, $t(32)=-3.413$, $p=0.002$. A Pearson's bivariate correlation did not support hypothesis 3 where parents and their grown children gendered play plans were not correlated for reports on daughters $r=.063$, $p=0.726$ or sons $r=.148$, $p=0.361$. From providing an overdue literature update on gendered play, there are now new implications and questions for future studies to investigate.

Presentation #31 Socioeconomic Status and Athletic Trainer Accessibility in Pennsylvania Public Secondary Schools
Presenter: Dr. Daniel Baer
Department: Sports Medicine

Athletic trainers (ATs) are healthcare professionals who provide preventive care, acute/emergency care, and treatment/rehabilitation for various injuries and health conditions. This presentation discusses original research on current trends in access to AT services in Pennsylvania public secondary schools, and barriers/consequences related to AT access in this setting. 508 Pennsylvania public high schools were included in the analysis.

2021-2022 Athletic Training Location and Services (ATLAS) project data were used to identify which schools had access to an AT. 2020-2021 PA Department of Education reports on median household income (MHI), percentage of low-income households, percentage of students eligible for free or reduced lunch, and percentage of students from racial minorities were used to measure socioeconomic status (SES). AT access is whether a school employs an AT at all, while level of accessibility is based on full-time (FT; ≥ 30 hours/week), part-time (PT; < FT), or no access.

Schools with AT access had an average MHI $11,157.59 greater than those without access. Schools with AT access also had lower enrollment from low-income families and fewer students eligible for free/reduced lunch. Statistically significant differences were also identified in these variables based on level of accessibility, with greater FT accessibility in higher income districts and schools. No statistically significant differences were found based on minority student enrollment.

These findings are consistent with previous studies identifying disproportionate access to AT services based on SES. This presentation sheds light on the inequities that exist within Pennsylvania and emphasizes the importance of ATs in the secondary school setting.

Presentation #32 Implementing voice-controlled, object-tracking drones
Presenters: Mary Bauman, Sean Whoriskey, & Josiah Becker
Faculty Mentor: Dr. Jongwook Kim
Department: Computer Science

We implemented a voice-controlled, object-tracking drone. Using the computer programming language Python, we control the drone by sending voice commands like take-off, land, rotate, and flip. For vocal communications between the drone and the user, those commands are sent to a Google's Speech-to-Text server, translated into requests understandable for the drone, and then sent out to the drone using two communication protocols: User Datagram Protocol (UDP) and Internet Protocol (IP), both of which were originally designed for the Internet.

Additionally, the drone is capable of tracking objects based on color. First, our program analyzes the images received from the drone's camera. This is done by defining a threshold for a specific color the user wants using HSV (hue, saturation, value) values. Each pixel is checked to see if it is within the bound of the specific threshold. An example of this in use: if the highest average of white pixels are up and to the right, the drone turns right and flies up to keep the white pixels centered in the camera.

For our presentation, we demonstrate our voice-controlled, object-tracking drone in action, explaining the programming skills (e.g., multi-threaded programming, socket programming) and computer science techniques (e.g., digital image processing, voice recognition) that we used for controlling the drone. We also discuss the problems we faced, the lessons we learned, and our plans for future research.

Presentation #33 New Undergraduate Certificate in Spanish in Healthcare
Presenter: Dr. Cristóbal Cardemil-Krause
Department: Interdisciplinary Studies

Second language education is moving towards a pedagogy with an emphasis on specific purposes. The Department of Languages and Cultures has been working on a new Program in Spanish in Healthcare, which will begin offering an Undergraduate Certificate in Spanish in Healthcare, which emphasizes learning Spanish through the lens of the Health Humanities. The Certificate will be open to WCU students and other people from the community interested in improving their Spanish skills. This presentation will highlight the interdisciplinary structure of the program, which will allow students to learn the language with healthcare and health humanities related foci while integrating their own knowledge or interest in areas related to providing medical or mental health, or other areas related to public health. The presentation will highlight main ideas that will be discussed in the different courses included in the program.

Presentation #34 Narcoterrorism Efforts in Venezuela Affecting the United States
Presenter: Corey Lane
Faculty Mentor: Dr. Shannon McQueen
Department: Political Science

How does Venezuela's narcotrafficking affect national security in the United States (U.S.)? The U.S. and Venezuela have strained relations due to narcotrafficking and political controversy in Venezuela. An estimated two hundred metric tons of cocaine move through Venezuela per year, and roughly two-thirds of that total goes to the United States (AEI Working Group on Transnational Organized Crime in the Americas, 2017, p. 21). Corrupt military leaders and government officials participate in Venezuela's complex cocaine trade, and some collaborate with guerilla groups such as the Revolutionary Armed Forces of Colombia. The inclusion of low-ranking and high-ranking Venezuelan officials, such as President Nicolás Maduro, within the country's drug trafficking pattern contributes to significant corruption, as Venezuela ranks one-hundred and seventy-seventh out of one-hundred and eighty countries in Transparency International's Corruption Perceptions Index. Although the U.S. placed sanctions on current and former Venezuelan leaders to encourage the ending of illegal narcotics trafficking, illegal narcotics trafficking continues. Venezuela's illegal cocaine trade threatens U.S. national security as illegal drug trafficking supports violence perpetuated by American users and armed gangs, including petty crime, violence against women and children, and drug money-fueled violence (Menon, 2021). The following paper analyses the complex illegal cocaine trade in Venezuela, explains how the drug trade threatens U.S. national security, and suggests possible policy solutions.

Presentation #35 The effects of an online preceptor training program on athletic training clinical instruction
Presenter: Sharese Johnson
Faculty Mentors: Dr. Daniel Baer & Dr. Emily Duckett
Department: Sports Medicine

Purpose: Clinical preceptors in WCU's Athletic Training (AT) program volunteer their time and knowledge to provide hands-on learning, mentorship, and professional development skills through student clinical education experiences. The purpose of this study was to assess the outcomes of an online preceptor training program intended to improve preceptors' clinical instruction. Methods: This study took place between February 2020 and September 2021. Preceptors completed a series of online modules at their own pace, which included topics such as communication, relationship building, supervising autonomy, integrating evidence-based practice, and evaluating learning outcomes. Pre-test and post-test surveys included quantitative and qualitative self-assessment of perceived competence in these areas. 60 preceptors were invited to participate, 29 completed training, and 27 completed the post-test survey. Results: Survey items were assessed for internal consistency and factor structure using Cronbach's alpha analysis and factor analysis. Variables included teaching/learning, evaluating students, student development, communication, and mentorship. Results of paired t-tests revealed statistically significant (p < 0.001) improvements in teaching/learning, evaluating students, student development, and mentorship. Improvements in communication were not statistically significant. Qualitative responses were analyzed using Dedoose software and a constant comparative methodology. The data suggest that preceptors felt the training did not improve their communication skills because they were already confident in those skills prior to the training. Conclusion: Clinical experiences are essential to educating future healthcare providers. This study shows that the online preceptor training improved preceptors' perceptions of overall competence in their roles as clinical educators, suggesting that training provides a valuable professional development opportunity.

Presentation #36 Who Will Protect the Working Girl's Body, Blood, and Baby?
Presenter: Katharine Thomas
Faculty Mentors: Dr. Janneken Smucker
Department: History

My research focuses on the bodily experiences of female factory workers in the textile industry during the Second Industrial Revolution in the United States. Such bodily experiences include but are not limited to menstruation, pregnancy, childbirth, and sexual harassment. I argue that Female textile workers employed in the garment industry during the late nineteenth and early twentieth centuries endured hardships unique to their sex, as conditions in textile mills impacted the female biological experiences of menstruation, pregnancy, childbirth, and sexual harassment in a distinctively harrowing manner. Additionally, I assert that any activism on the part of labor unions in the garment industry during this period made little headway in the grand scheme of fighting for female bodily security, due to the male-dominated nature of union leadership structures and primary focus on pay equity. In support of my thesis, I have used both primary and secondary sources, specifically photographs, government documents, and peer reviewed academic journal articles. I have employed a method of analysis that aims to examine this topic from the perspective of the oppressed, giving voice to the working women of whom I write about. This research is strikingly relevant to twenty-first century America, as many women still lack adequate accommodations for their health and safety in the workplace.

Presentation #37 Emoticon: does it always help communication?
Presenter: Dr. Steve Bok
Department: Marketing

Computer-mediated communication (CMC) has become integral to modern interpersonal communication, with chat and messaging apps being widely used for staying connected. However, text-based communication lacks non-verbal elements such as gestures and facial expressions. To compensate for this, emoticons are frequently used as surrogates to convey emotions and tone. While previous research has focused on the benefits of emoticon use in CMC contexts, there is a dearth of studies examining their influence in marketing contexts. The present research aims to investigate the influence of emoticons on evaluating a new product and explore a potential boundary condition of emoticon use. The findings demonstrate that emoticons significantly impact product attitude, which is mediated by the fluency elicited by emoticons, which in turn affects the perceived competency of the product. Furthermore, the Need for Cognition (NFC) moderates these sequential multiple mediations, providing evidence for a possible boundary condition of emoticon use. Studying the impact of non-verbal communication cues in text-based communication is crucial, as these cues can affect message interpretation and understanding. Emoticons can add valuable emotional and contextual information to text-based communication, enhancing the overall effectiveness of marketing strategies. This research contributes to a better understanding of the role of emoticons in marketing contexts and has practical implications for marketers who use text-based communication channels to promote their products.

Presentation #38 Bridging the Mental Health Gap in Iraq: Theory-Based Interventions for Improved Healthcare Delivery
Presenter: Sara Hassan
Faculty Mentors: Dr. Chiwoneso Tinago
Department: Health

Purpose: There is a critical gap in mental health care and delivery of effective mental health interventions in the Middle East. Contributing factors include a lack of awareness about the medical nature of depression, the stigma associated with receiving care for mental health issues, a lack of acknowledgment of the need for treatment, and difficulty accessing relevant services. Compelling evidence supports theoretical frameworks as effective guides to intervention development and implementation, yet little is understood about how these theories are applied and the effectiveness of these theory-applied interventions in addressing mental health in Middle Eastern countries like Iraq.

Method: This study was a theory application of mental health interventions in Iraq. A literature review was conducted of various mental health interventions conducted within the adult Iraqi population. Three interventions were then chosen for review. A content analysis was conducted to assess the type of intervention, its theoretical basis, and its effectiveness.

Outcomes: The results indicate the benefits of mental health programs and demonstrated the necessity of providing these programs on a larger scale throughout Iraq. Due to the lack of research conducted on mental illness in Iraq, the majority of interventions used counseling and the Social Cognitive Theory. However, the inclusion of socio-environmental factors and normative beliefs may be a more effective method when working in non-Western cultures.

Implications: These effective programs must be made widely available throughout Iraq to help support the well-being and development of the population.

POSTER PRESENTATION ABSTRACTS

Poster #1 Diffusion in confined spaces: Is softer faster?
Presenter: Tanisha Rutledge
Faculty Mentor: Dr. Kevin Aptowicz
Department: Physics

A steak marinating, the fragrance of Spring flowers spreading through a home, oxygen entering our bloodstream in our lungs, all of these are examples of a phenomena called diffusion. For over a century, physicists studied and modeled diffusion. Recently, scientists have performed experiments that are questioning that understanding. An experiment published in Nature Communications in 2019 showed that “soft” particles diffuse faster than “hard” particles. Here, the word soft means deformable, like a sponge ball. Whereas a hard particle would be rigid, like a billiard ball. This is in contradiction with predictions based on the particles diffusing in a bulk material, like in water. In confined spaces, softer nanoparticles diffuse faster. This work was conducted with nanoparticles, but what about particles 1000x bigger? How does “softness” impact the diffusion of micro-sized particles? Since cells are microparticles, the diffusion of microparticles is important for biological systems. In this work, I measured the diffusion of soft and hard microparticles in a confined space and compared the results. The hard particles were composed of polystyrene latex (PSL) spheres. The soft particles were composed of a microgel (Poly(N-isopropylacrylamide polymer). Diffusion was measured using a video-microscopy and calculated with particle tracking code. Confinement was controlled by changing the spacing between the coverslip and microscope slide. By analyzing the motion of the particles in the video, I determined the diffusion coefficient for the two types of particles and compared what happens as the particles become more confined.

Poster #2 Lesbian, gay or heterosexual: Will the sexual orientation of the victim influence college students' likelihood to intervening as a bystander?
Presenter: Amija Coleman
Faculty Mentor: Dr. Jaeyong Choi
Department: Criminal Justice

Although various factors influencing bystander readiness to intervene have been found, little study has been conducted to investigate the significance of potential victims’ sexual orientation in predicting the possibility of someone intervening (Moschella et al, 2018). Many research have looked at the impact of gender interactions on the possibility of a bystander intervening in potentially violent circumstances, but these studies have tended to focus on heterosexual prospective victims. My research finding will provide an answer to the question of how likely it is for individuals to engage in a circumstance where someone who is homosexual rather than heterosexual is subjected to interpersonal violence. My research will examine lesbian, homosexual, and heterosexual relationships in terms of bystander propensity to participate in interpersonal violence. In the Spring semester of 2023, West Chester University students will be exposed to a vignette as part of this study. If our investigation uncovers different patterns of readiness to intervene based on sexual orientation, policymakers can boost preventative efforts. By acknowledging the implications of heterosexual interpersonal violence, I seek to raise awareness and knowledge of bystander intervention.

Poster #3 Student-to-teacher victimization and its negative impact on teaching approaches: Applying propensity score matching
Presenters: Mckenna Newnam & Erin Faucher
Faculty Mentor: Dr. Jaeyong Choi
Department: Criminal Justice

The negative impact of student-to-teacher victimization on teachers' perceptions of the work environment and their well-being is supported by growing empirical literature; however, while it is a well-documented subject, the research field is limited in our understanding of its adverse effects on teachers' perceptions related to student learning. Using data from 1,054 middle and high school teachers in South Korea, this study uses propensity score matching to understand potential influences that student-to-teacher victimization can have on the three outcome variables: teacher neglect, commitment, and pride. Results show that, when compared with non-victims, victims of student-to-teacher victimization are more likely to be neglectful towards their students and tend to exhibit less pride as teachers, but results showed no significant statistical difference was observed for teacher commitment. The current findings highlight the importance of developing programs to prevent and intervene students' aggressive behaviors towards teachers.

Poster #4 Repulsive Magnet Applications for Use in Orthopedic Footwear
Presenters: Sean Weaver & Taylor Webb
Faculty Mentor: Dr. Jesse Placone
Department: Biomedical Engineering

Lower extremity fatigue injuries are some of the most common physical ailments in the world and are often caused by ground reaction forces transduced to the body when walking or standing for long periods of time. A significant component of this phenomena is the footwear that a person is wearing when undergoing these activities, and how the footwear dissipates energy with each step. Modern midsole materials used in shoes do a better job than days past in dissipating this experienced energy to lower fatigue injury occurrences, but there is still much to be desired. These materials are also inefficient in providing energy return to the wearer since they dissipate energy by converting mechanical force into heat. Proposed is a novel midsole system to provide a gentler transduction of ground reaction forces to the body and recycle the energy from each step back into the walking motion. To do this, repelling permanent magnets were utilized as complementary components to traditional materials in the heel of a shoe. It's believed this has the potential to both provide superior shock absorption while conserving energy to be utilized in forward propulsion during the heel strike to heel off phase of walking.

Poster #5 Bringing Estill to WCU
Presenter: Brigit Corej
Faculty Mentor: Dr. Elizabeth Grillo
Department: Communication Sciences & Disorders

The Estill Voice Model applies scientific theory, anatomy, and physiology to vocal performance (Estill Voice Training, 2022). The program supports singers, actors, professional voice users, and speech-language pathologists in furthering their understanding of the voice. "Bringing Estill to WCU" offered students and faculty the opportunity to learn an innovative, evidence-based vocal training approach. Participants completed the asynchronous Estill Foundations Course and synchronous Hybrid Level 1 and 2 Estill Voice Courses. The synchronous courses occurred via Zoom on January 7th, 8th, 14th, and 15th, and included four WCU participants. The courses covered the Estill Figures and Voice Qualities. Participants learned how to manipulate the structures of their voice in isolation through both exercises and visuals. After learning the Estill Figures, the participants combined the structures to create the six Estill Qualities. At the conclusion of the training, WCU participants completed surveys to evaluate the courses. Overall, WCU participants felt the course was applicable to their professions and presented information beyond their regular coursework. Students said they would recommend the course to others, and some planned to continue their Estill training to earn their Estill Figure Proficiency certificate. The project also succeeded in prioritizing student accessibility. The combined cost for the Foundations and Hybrid Level 1 & 2 Courses for WCU participants was discounted 37.4% from the original price. The impact of the Estill Voice Courses is lifelong and extends beyond the individual participants of the course. As each participant applies the Estill training to their professional careers, their peers and colleagues will engage with the model. The ongoing sharing of knowledge from the course will enable the sustainability of "Bringing Estill to WCU."

Poster #6 Improving Students' Programming Skills by Implementing University-Wide Programming Contests

Presenters: Dr. Liu Cui, Dr. Jongwook Kim, & Dr. Si Chen
Department: Computer Science

Computer science is not all about programming. However, programming is the fundamental skills required for most areas including software engineering, artificial intelligence, data analysis, security, network, etc. With years of teaching computer science courses at colleges, we have noticed a large gap between programming skills that students can learn from course assignments and those that they need for a technical interview or at work. Many factors contribute to this gap. First, programming requires a wide range of skills and knowledge required for solving a problem. Programming assignments alone are far from enough. Students need more programming experience with solving non-trivial problems that can stress their capability of finding an optimal solution among infinitely many. Second, problems vary a lot, and the course assignments cannot cover all or even most of them. Third, interview is a timed process, which is different from assignments where students are not constrained with time and can find help in many places.

To bridge the gap, we provided university-wide programming contests for students who are less experienced in programming. The unique part of these contests is that they are designed by students and for students. We recruited student judges who create problems with test sets, guide them in uploading problems onto our own online judging system, and help them prepare the events. We had a successful event in Fall 2022 and will hold two more in Spring 2023.

In this poster, we will talk about (1) the online judging system that used by the event, which also have great potential in helping students prepare interview, reaching out to local high school students to prepare AP tests, providing non-major students to try out programming problems, etc. (2) the efficiency and effectiveness we're running our on-campus programming contests and improves undergrad's programming skills. (3) students' feedback.

Poster #7 The Impact of Reforestation Technique on Stem Mortality in a Seven-Year-Old Reforestation Experiment
Presenter: Kathryn Krueger
Faculty Mentor: Dr. Jessica Schedlbauer
Department: Biology

Reforestation can restore forest ecosystem services and function to disturbed areas of the mid-Atlantic where they have been lost. While several reforestation techniques exist, their long-term impacts on forest structural development have not been well studied, specifically how different planting strategies affect stem mortality. This question was investigated at Mount Cuba Center, where six plots were established using reforestation treatments varying in planting density (5 vs. 10 foot spacing) and species composition (trees only or trees and shrubs). In each treatment, living and dead stems were identified and measured for diameter at breast height and leaf area index (LAI). Treatments were examined for the degree of stem mortality after seven years of growth by comparing the percent of dead stem density to living stem density in each plot. Species composition, especially for treatments with trees and shrubs, had a greater influence on stem mortality than planting density, though both variables contributed to stem losses. Treatments without shrubs had comparatively lower stem mortality. All treatments experienced some deviation from the originally established species composition, with the greatest differences observed in treatments including shrubs (dead stem density was 25-30% of total stem density). Across treatments, the majority of dead stems were small trees (5.0 - 7.3 cm stem diameter). Average LAI was the greatest in high-density plots, though it was not associated with higher stem mortality. As reforestation techniques including both trees and shrubs yield substantial stem mortality, the high establishment investment (i.e., cost, time) may not yield intended restoration goals.

Poster #8 Interfering Effects of Blood Proteins on CuSi Protein Corona
Presenter: Kevin Phillips
Faculty Mentor: Dr. John Pisciotta
Department: Biology

CuSiNP's are characterized by a core-shell of silica loaded with copper nanoparticles, usually by Scanning Electron Microscopy (SEM)- Energy Dispersive X-Ray Spectroscopy. Due to their high surface-area to volume ratio, proteins from biofilm have been observed to form Corona along CuSiNP's, inhibiting the microbes' ability to form a colony. Proteins with high affinity for surface exchange form hard corona, while lower affinity forms soft corona. This can be characterized by K_d, Adhesion to hydrophobicity, molecular weight and conformational changes.

My plan for studying the effects of corona-nanoparticle bonding by observing the bonding in the presence of interfering agents. Human blood plasma contains proteins like fibrinogen, transferrin and hemoglobulin which could have a binding affinity which interferes with the interface of *Staphylococcus aureus* and the CuSiNP. This experiment will observe each of these proteins under optical and electron microscopy in order to see if they will interfere with the binding of CuSiNP's when used in medicine. I hypothesize that each of these proteins will bind to the nanoparticle, competing with biofilm protein for nanoparticle corona. Each protein will be researched over three-week intervals. In which time, I'll block the formation of corona from the Biofilm with the protein serum. The proteins will be administered at different concentrations; formation of corona will be documented via microscopic imaging of the lysed biofilm and cell counting. I also plan on running a Rabbit-Serum based coagulase test to determine the population of coagulase with each *S. Aureus* colony. Research on my continuation of Azar Saikali's nanoparticle project began on January 2023 and will commence in May 2023.

Poster #9 The Great Bounce Back: Revitalization and Changes in Perugia's Tourism and Nightlife Following COVID-19 and its Restrictions
Presenter: Sadie Patterson
Faculty Mentor: Dr. Michael Di Giovine
Department: Anthropology & Sociology

Perugia, the capital of Umbria, Italy, is a town known for its jazz and chocolate festivals. Over the past couple of decades, it has become increasingly popular with tourists, both Italian and international. This rise was, of course, affected by the COVID-19 pandemic. During the month of June, 2022, I conducted a series of ethnographic interviews with Perugian locals, including restaurant, hotel, and bar employees. I also completed research through participant observation in settings that garner tourism. Using these qualitative research methods, I found that tourism and nightlife in Perugia suffered greatly during the COVID-19 pandemic; now that lockdowns are over, both are doing better with a special focus on catering towards local interests. However, some businesses, like mid-star hotels, have not recovered. I also found links between the tourism industry's sustainability and economic efficiency efforts. As time goes on, it will be important for local businesses to understand the changing demographics and interests of Perugian tourists and locals, as well as where those interests may align with or contest each other. The conjunction of sustainable and economic interests may also be applied to the tourism industry in the United States.

Poster #10 Evolution of Education and Clinical Service Delivery: Celebrating 100 Years
Presenters: Dr. Elizabeth Grillo, Dr. Timothy Huang, Dr. Sojung Kim, Dr. Mareile Koenig, Dr. Jennifer Means, Dr. Patricia Swasey Washington, & Dr. Reva Zimmerman
Department: Communication Sciences & Disorders

In 2023, the West Chester University Department of Communication Science and Disorders will celebrate 100 years of educating future generations of speech-language pathologists and audiologists, conducting scholarship that informs pedagogical and clinical practice, and providing clinical services to individuals within the community. In 1923, Elizabeth Tyson, faculty member in the English department, established one of the first speech clinics in the United States at West Chester Normal School. The Communication Sciences and Disorders (CSD) department has evolved from one speech correction course to four unique programs offering a Bachelor of Arts (B.A) degree, a non-degree certificate, a Master of Arts (M.A.) degree, and an accelerated B.A. to M.A. degree. The West Chester University Speech and Hearing Clinic has grown from a speech clinic linked to one course to a diverse clinical experience serving individuals with communication, cognitive, hearing, and swallowing/feeding needs. Service delivery is provided fall, spring, and summer four days a week either in-person or via telepractice. Through the years, the CSD department has advanced its programs, pedagogy, scholarship, and clinical services to improve the educational experiences of our students and the clinical service delivery for our clients and caregivers. This poster will present the history and significance of the CSD Department at WCU, as well as establish the vision for the Department's future. Specifically, we will describe the implementation of advanced technologies for didactic and clinical use, as well as innovative pedagogical strategies that address the demand for well-rounded and flexible clinicians of the 21st century.

Poster #11 Law Enforcement Wellness Survey: Identifying Sources of Stress
Presenter: Timothy Chesnik
Faculty Mentors: Dr. Michele Bratina & Dr. Michael Antonio
Department: Criminal Justice

Law enforcement officers have been criticized for excessive force in recent years. Such criticism may negatively impact the physical and mental wellbeing of officers. This presentation reports findings gathered from an anonymous, self-administered survey with community-based and county level police officers about factors related to job stress. Specific domains of stress examined included family & friends support; local community support; departmental staff support; and departmental administrative/leadership support. Findings may be used to develop and inform mental health and wellness programming for police officers and to enhance critical incident trainings currently being delivered in specific jurisdictions.

Poster #13 Energy optimization in battery-operated real-time systems
Presenter: Swathi Konduru
Faculty Mentor: Dr. Ashik Ahmed Bhuiyan
Department: Computer Science

Poorly optimized embedded systems have a huge impact on global energy consumption. As there are more and more such systems being implemented in various industries there is a need for energy optimisation to reduce carbon footprint. Agriculture based real time embedded systems has more requirements of optimizing energy as the systems are likely to run on a limited power supply. A promising method is to implement some form of DVS, DPM or integration of both can greatly reduce energy consumption and reduce the costs of maintaining the embedded systems. Some of the previous energy optimisation methods in the agricultural sector are done using subjective mathematical optimisation such as modeling the entire system (including transporting, storing etc) as a linear programming problem model or Data Envelopment Analysis model. The drawbacks of these models are they are subjective and very sensitive to the inputs and outputs. The aim of this study is to optimize the energy consumption in embedded systems by using Dynamic Voltage Scaling (DVS), Dynamic Power Management (DPM) and Integration of both. The tasks are scheduled based on the Least Slack Time (LST) policy and task priority as the tiebreaker. This is an objective approach which can be scaled easily depending on the requirement. The work is divided into three case studies where case study1 focuses on DVS approach under Least Slack Time scheduling algorithm, whereas case study 2 focuses on DPM approach under LST scheduling algorithm and the case study 3 focuses on the integration of both DVS and DPM techniques under the Least Slack Time scheduling algorithm. The ability of these approaches to optimize the energy consumption is evaluated and compared to choose the best appropriate model for a specific application.

Poster #14 Drag Reduction in the Snailfish Tail Curl
Presenter: Daniel Wagner
Faculty Mentor: Dr. Michael Rosario
Department: Biology

When suctioning to a surface, snailfish are known to bend the posterior part of their body into a postural position referred to as the tail-curl. In the tail-curl posture, the tail is tucked neatly under the head, which makes the snailfish appear smaller as well as minimizes its lateral surface area. Little is known about why snailfish adopted the tail-curl posture. One biomechanical explanation is that it may help reduce the drag forces imparted on the snailfish by fluid flowing over the body. The purpose of this study was to determine the effects of the snailfish tail-curl on the hydrodynamic forces imparted on the snailfish by the fluid flowing over the fish. Three 3D snailfish models (representing straight, curled, and bent-tail postures) were created using 3D modeling software (Blender) and printed using a UV Resin 3D printer. Hydrodynamic testing at various speeds were used to measure the drag force from flow perpendicular to each model. Computational fluid dynamics was utilized to look at pressure contours to test for streamlining. Our results indicated that the reduction of projected surface area in the bent-tail and curled postures lowered the measured drag force compared to the straight snailfish. Therefore, a significant reduction in the coefficient of drag compared to the straight-tail model was seen in both curled ($p = 2.44$ E-6) and bent-tail postures ($p = 2.61$ E-15). Flow simulations showed similar pressure differences around the straight and tail-curled model, concluding that the reduction of drag is primarily explained by the decrease in projected surface area. Our results reveal hidden aspects of the interactions between organismal posture and fluid environment.

Poster #15 Survey Incentive Effectiveness for Undergraduate Students
Presenter: Evan Parker
Faculty Mentor: Professor Laura Pyott
Department: Mathematics

College students receive many emails regarding different types of surveys. However, there is often a lack of survey responses and completion, costing companies and universities valuable data. Therefore, these companies and universities have attempted to incentive the surveys with mixed results. In October 2020, the RamPoll team sent out an online survey to collect opinions about the 2020 presidential election to Pennsylvania-resident undergraduate students at the 13 Pennsylvania state colleges, then again in October 2022 about the 2022 midterm election. To test the effectiveness of survey incentives on survey responses and completion at the college-age level, students were randomly chosen to receive an incentive based on campus. I plan on utilizing chi-squared modeling to build confidence intervals to test for survey response rate across treatments, completion rate across treatments, and completion rate across years. I also plan on analyzing the time it took students to complete the survey to potentially determine if there is a discrepancy between treatment groups. I hypothesize that the survey incentives boosted both response and completion rates and that the guaranteed incentive boosted the response rate compared to a chance of an incentive, and that those students who received notice of an incentive took a shorter amount of time to complete the survey.

Poster #16 Effects of Neonatal Co-Exposure to Alcohol and Nicotine on Blood Levels and Developmental Milestones in Mice
Presenter: Kaile Wanamaker
Faculty Mentor: Dr. Kristen Breit
Department: Psychology

Prenatal alcohol exposure may lead to a range of deficits referred to as Fetal Alcohol Spectrum Disorders, including critical developmental delays. Similarly, prenatal nicotine exposure is also associated with developmental delays, including stunted growth and low birth weight. However, it is unclear whether nicotine consumption via electronic cigarettes (e-cigarettes) may lead to the same teratogenic effects. E-cigarettes do increase drug blood levels more than traditional cigarettes. Moreover, 10% of pregnant people report co-consuming alcohol and nicotine, yet it is unknown whether prenatal co-exposure exacerbates maternal drug blood levels or offspring developmental delays more than exposure to either drug alone, particularly when e-cigarettes are used. Animal (preclinical) models can be used to better understand processes that are unable to be tested in humans. This study examined the effects of co-exposure to alcohol and nicotine via e-cigarettes during early development on maternal blood levels and offspring developmental milestones using a mouse model. Subjects were exposed to alcohol, nicotine, the combination, or an e-cigarette vehicle during postnatal days (PD) 4-9 (equivalent to the human third trimester brain growth spurt). Blood samples were collected on PD 4 and 9 to examine potential pharmacokinetic effects of prenatal co-exposure. Pups were examined for developmental milestones (weight gain, eye opening, ear unfurling, and teeth eruption) to investigate whether co-exposure further alters typical developmental patterns. Data are currently being collected and analyzed. These data will elucidate whether prenatal co-exposure leads to pharmacokinetic interactions in maternal blood levels, and whether prenatal co-exposure may alter developmental timelines in newborns.

Poster #18 Harrisburg's Redlining Story: Exploring its Legacy and Impact
Presenter: Mya Garrett
Faculty Mentor: Dr. Dottie Ives Dewey
Department: Geography & Planning

This research investigates the long-term impacts of redlining on neighborhoods in the City of Harrisburg in Pennsylvania. Using a mix of methods including case studies, field observation, gis analysis, and quantitative comparison of key indicators across red-lined and green-lined neighborhoods, the analysis compares household socio-economic outcomes related to neighborhood character. Findings illustrate how one of the most damaging impacts of redlining – the disparity in household wealth creation – was established through redlining practices and perpetuated through local planning and zoning. Findings suggest how steps can be taken today to reinvest in disadvantaged neighborhoods to help mitigate the worst impacts of redlining.

Poster #19 The Effects of Instrument-Assisted Soft Tissue Mobilization on the Lower Extremity: A Systematic Review and Meta-Analysis
Presenter: Sarah Jamie Johnson
Faculty Mentor: Dr. Alison Gardiner-Shires
Department: Sports Medicine

Objective: To determine the overall effectiveness of instrument-assisted soft tissue mobilization (IASTM) in improving range of motion (ROM), pain, strength, and patient-reported function in the lower extremity to provide recommendations for use. We also sought to examine the influence of IASTM on unhealthy and healthy participants, body parts treated, and products used.

Data Sources: We searched the Academic Search Premier, Alt Healthwatch, CINAHL Complete, Cochrane Library, MEDLINE with full text, NLM PubMed, Physical Education Index, SPORTDiscus with full text, and the Web of Science databases for articles published from 1997 through 2022.

Study Selection: Included articles were randomized controlled trials (RCTs) measuring ROM, pain, strength, or patient-reported function, examined the lower extremity, and compared IASTM treatment with at least 1 other group.

Data Extraction: Twenty-five articles met the inclusion criteria. Three independent reviewers assessed study quality using the PEDro scale. Sixteen articles were included in the meta-analysis.

Data Synthesis: The average PEDro score for studies of uninjured participants was 7.5 (range = 4 to 9) and for studies of injured participants was 5.44 (range = 3 to 8).

Conclusions: The number of RCTs examining the effectiveness of IASTM for the lower extremity has increased substantially since 2019. IASTM remains an effective modality to improve lower extremity ROM in healthy subjects. IASTM is effective in reducing pain in some pathologies. More evidence exists to support the effectiveness of IASTM in improving strength. Due to a lack of consistency across studies, we cannot determine optimal treatment times or make product recommendations.

Poster #20 The effect of anosmia on eating behaviors in individuals with COVID-19: A systematic review
Presenter: Emily Skane
Faculty Mentor: Dr. Alessandra Sarcona
Department: Nutrition

Objective: To evaluate the effect of anosmia on eating behaviors in individuals with COVID-19.

Methods: A systematic review was conducted of research studies published between January 2020 and June 2022 using CIANHL Complete, MEDLINE Complete, and reference lists of retrieved literature. Participants were individuals experiencing partial to full smell loss related to COVID-19 infection. Each included study was assessed using the Quality Criteria Checklist which found an overall neutral validity.

Results: Seven studies met the inclusion criteria and were included in the review. In all seven studies, participants described anosmia as having a major impact on appetite, food enjoyment, fullness and satiety. Many participants in the included studies reported distorted taste and smell which impacted their eating behaviors. However, in every study, results related to appetite varied greatly with participants experiencing decreased, increase, or no change in appetite. The relationship between COVID-19 related anosmia and overall nutrition provided inconsistent and inconclusive evidence.

In general, the included articles did not observe participants before the onset of active COVID-19 infection, therefore researchers had to rely solely on participant memory up to two years before the study was conducted. Small sample sizes were a common theme and due to the inclusion and exclusion criteria, some related articles may have been excluded from the review.

Conclusion: Although not definitely causative, researchers suggest a relationship between COVID-19 related anosmia and a change in eating behaviors. However, more research with larger sample sizes are needed to definitively state a linkage.

Poster #21 The effectiveness of subsidized or financial incentives on intake of fruits and vegetables in low-income households and communities: A systematic review
Presenter: Rebecca Flanagan
Department: Nutrition

Objective: To determine the effectiveness of subsidized or financial incentives on fruits/ vegetables intake in low-income households and communities.
Methods: A systematic review was conducted of quantitative studies published between January 2016 and December 2021 using PubMed, Medline Ebscohost and reference lists of retrieved literature. Participants resided in household income ≤200% of the US federal poverty level or received care from federally qualified health centers and participated in research studies utilizing financial incentives or cost-off community supported agriculture (CO-CSA). Critical appraisal of each study was assessed using the Quality Criteria Checklist, finding a mixed degree of validity.
Results: Ten studies met the inclusion criteria and were reviewed. The studies found similar evidence that CO-CSA and financial incentives increased fruit /vegetable intake in low-income households and communities. Seven studies found statistically significant increases in fruit / vegetable consumption ($p \leq .05$), with two studies observing significant improvements in both adults and children of household ($p \leq .05$). One study reported a statistically significant reduction in food insecurity scores (p < .05). Nonetheless, included studies had a small sample sizes and short study durations, resulting in a discontinuance in increased fruit /vegetable intake in one study after intervention disbursement. Non-English language studies were excluded and may have resulted in non-Hispanic white women composing the majority of the study populations.
Conclusion: CO-CSA and financial incentives has been shown to be effective in increasing fruit/ vegetable intake in low-income communities. Larger, longer, and diverse randomized controlled trials should be the focus of further research.

Poster #22 Loneliness, Isolation, and Internet Use Among Older Adults: How much Technology Use is Too Much?
Presenter: Sebastian Ehmann
Faculty Mentor: Dr. Jasmin Tahmaseb McConatha
Department: Psychology

This project explores the impact of technology and internet use on well-being, life satisfaction, and loneliness in older adults. Technology use has dramatically expanded over the past ten years. Older adults (65 years and older) have tended to use technology less frequently than younger people. The gap, however, is closing (Faverio, 2022). Due to technology's increasing global impact, understanding the ways that older adults, particularly multinational marginalized older adults, use the internet is important. Most people are aware of the benefits of different technologies, but it also comes with a cost; potential technology addiction and cyber dissociation (Ozturk & Erdogan, 2022). Recent research findings suggest a higher risk for young individuals to become addicted to technology (Gioia, Rega, Boursier, 2021). This difference is assumed to be related to intergenerational differences in the intuitive ease of using these technologies. Contrary to that, technology use in older adults has been shown as beneficial in promoting well-being and combating loneliness through digital social connection and engagement (Geirdal et al., 2021).
This qualitative research project considers the results of in-depth interviews that investigate the experiences of older adults with technology. Specifically, this study explores the benefits and potential downside of technology use by older adults. It is anticipated that the finding will help to broaden our understanding of how technology impacts the well-being of marginalized older adults. The results should lead to insights into how technology relates to loneliness, life satisfaction, and overall well-being.

Poster #23 Discovery of New Viral Pathogens of C. elegans from Wild Nematode Isolates
Presenter: India Cannon
Faculty Mentor: Dr. Jessica Sowa
Department: Biology

To date, there are only three known viruses that naturally infect *Caenorhabditis* nematodes and of those, only the Orsay virus infects *C. elegans*. Through collaboration with colleagues in the Netherlands, wild nematode communities were collected from various sampling sites. We then tested these wild nematodes for the presence of intracellular infections that could be transmitted to *C. elegans* using a co-culture method. In this method, wild nematodes are co-cultured together with transgenic *C. elegans* engineered to express fluorescent reporters when infection-induced genes are activated. To prioritize potential viral infections specifically, co-cultures that showed reporter activation were homogenized and filtered through 0.22µm filters to size-exclude non-viral pathogens. These filtrates were then tested for their ability to transmit the infection. For infections that did transmit via the 0.22µm filtrates, samples of infected worms were taken and stained using Fluorescence in Situ Hybridization (FISH) probes for each of the known *Caenorhabditis* viruses. Through this process, at least one new viral isolate has been identified: V2, which appears to be a novel variant of Orsay. The discovery of this and other novel virus variants will provide scientists with new research opportunities to explore mechanisms of host immunity and pathogen virulence.

Poster #24 Classroom Chaos Relates to Cortisol Levels for Children Attending Head Start Preschool

Presenters: Emma Gibson, Anna Carroll, Jadyn Branch, & Rochell Blignaut
Faculty Mentor: Dr. Eleanor Brown
Department: Psychology

Head Start preschool is designed to support children facing poverty risks. Yet research has indicated that preschool also may tax children's physiological stress response systems (Bernard et al., 2015). Research framed by Bronfenbrenner's bioecological model (Bronfenbrenner, 1979; Bronfenbrenner & Evans, 2000) has demonstrated that instability and chaos associated with poverty environments are inherently stressful for children and therefore tax physiological systems. The present study is the first we know of to examine the impact of classroom chaos on stress levels for children attending Head Start preschool.

Participants were 74 children ages 3 to 5 years old who attended a Head Start preschool in Philadelphia. Children were video recorded in four different class periods on six different days. Trained observers rated classroom chaos using a standard measure of this construct. After these same class periods, research assistants collected saliva samples to test levels of the stress hormone cortisol. Hierarchical linear modeling or HLM modeled cortisol as a function of time of day (given the diurnal variation in this hormone) and then to examine classroom chaos as a potential moderator of this relation.

Results of hierarchical linear modeling matched those of prior studies of cortisol in preschool context and showed increasing levels of cortisol across the preschool day (a trajectory that differs from the expected diurnal decline). Results showing an atypical cortisol trajectory, with an increase in stress levels across the preschool day, implies that preschool context is physiologically challenging for children who already face disproportionate levels of stress due to poverty.

Poster #25 Parent Anger Relates to Cortisol Elevations for Children Attending Head Start Preschool
Presenter: Jamie Gensbauer
Faculty Mentor: Dr. Eleanor Brown
Department: Psychology

A robust research literature suggests that the impact of early adversity on child developmental outcomes is partially mediated or explained by the physiological stress response functioning. Economic hardship, for example, has been linked to dysregulation in levels of the stress hormone cortisol, as has negative parent emotion expression. Whereas a number of studies have examined links between parent depression and anxiety and child stress levels, the present study is the first we know of to examine parent anger in relation to child cortisol. Participants were 370 children attending Head Start preschool, and their parents or primary caregivers. Parents or primary caregivers reported on symptoms of anger using a well validated measure, and also provided demographic information. Children provided saliva samples at four times across the preschool day on two days at the start of the schoolyear and two days at the end of the year, and samples were assayed for levels of the stress hormone cortisol, with Area Under the Curve with Respect to Ground (AUCg) used to represent cortisol output across the preschool day. Linear regression analyses suggested that parent anger statistically predicted child cortisol output across the preschool day at the end of the year, controlling for start-of-year cortisol output as well as key demographic variables. By the end of the preschool year, children whose parents reported greater symptoms of anger showed higher stress levels within preschool context. Implications concern understanding the impact of parent anger on child stress levels and potential constraints on positive effects of Head Start preschool.

Poster #26 Daily Poverty-Related Stress and Child Emotion Regulation
Presenter: Emily Schnarr
Faculty Mentor: Dr. Eleanor Brown
Department: Psychology

A robust research literature has linked poverty to child emotion dysregulation. Parent emotions help to mediate or explain this relation. Yet few studies have examined whether daily stressors within the poverty ecology might explain variance in child emotion regulation over and above that associated with parent mood. The present study included 131 children attending a Head Start preschool on the East Coast of the US and their primary caregivers. At the start of the preschool year, caregivers completed initial demographic interviews and rated their depressive symptoms on the Center for Epidemiologic Studies–Depression scale (CES-D; Radloff, 1977). Caregivers also completed follow up interviews about daily stress on 10 different days, using Bolger and Schilling's 1991 checklist of daily poverty-related stressors. Teachers rated child emotion dysregulation near the start and end of the preschool year using the Emotion Regulation Checklist (Shields & Cicchetti, 1997). According to linear regression analyses, daily poverty-related stressors predicted variance in child emotion regulation change beyond that accounted for by other demographic variables and contextual poverty risks. Children who experienced a greater number of daily poverty-related stressors showed less growth in emotion regulation across a year of Head Start attendance. Implications concern understanding the impact of daily poverty-related stress, explaining links between poverty and child emotion dysregulation, and considering how contextual poverty risks may limit the effectiveness of child-focused interventions.

Poster #27 The COVID-19 Pandemic and Daily Stress and Coping for Families Facing Economic Hardship
Presenter: Shanelle Stovall
Faculty Mentor: Dr. Eleanor Brown
Department: Psychology

Nearly 40% of families with young children live at or below the threshold for low-income status. The ecology of economic hardship hosts a broad array of stressors that impinge on family life, with direct effects on family members as well as indirect effects on child wellbeing via the impact on parenting. Anecdotal evidence and a small body of research suggests that the COVID-19 pandemic exacerbated existing conditions of hardship as well as introduced new stressors for families facing adversity related to poverty. Evidence also suggests that many families have shown remarkable resilience, with parents drawing upon strengths to support their children through this challenging time. The present study employs a bioecological frame and examines parental stress and coping and indicators of child well-being pre-COVID-19 pandemic and during the COVID-19 pandemic for families facing economic hardship. Participants included approximately 100 parents and children enrolled in Head Start preschools in the Philadelphia region. Parents or caregivers completed initial demographic interviews and then, using "daily diary" methodology, completed 10 follow-up interviews that included well-validated questionnaires tapping stress and coping. Analyses are in progress. A Multiple Analysis of Covariance or MANCOVA will be used to examine how the COVID-19 pandemic relates to average levels of stress and coping. Hierarchical Linear Modeling or HLM will be used to analyze the within- and between-persons relations between daily stress and coping and the COVID-19 pandemic as a potential moderator of this relation. Implications concern the impact of the COVID-19 pandemic on daily processes for families with young children, and interventions that might be implemented to promote parent and child wellbeing.

Poster #28 My professor is about to get punched, will bystanding students report? The effects of race, gender, and age of the professor on the willingness to report student-professor victimization among students in the college classroom.
Presenter: Robert Heckman
Faculty Mentor: Dr. Jaeyong Choi
Department: Criminal Justice

There have been some studies investigating the factors that affect reporting of violence on college campuses (e.g., gender-based violence) or in a domestic violence setting (e.g., perceived injury effects on gender attributions for blame) (Cantalupo, 2014; Parker et al., 2020). However, limited research has been conducted to explain the influence of race, gender, and age of the professors on peers' willingness to report potential violence against professors by students. This study seeks to understand the influence of the factors such as how race, gender, and age of professors impact the likelihood of reporting violence occurring in the classroom setting between professor and student. The proposed study implements a vignette experiment for students attending West Chester University in the spring of 2023 and analyzes the collected data. The findings of this research will further explain the implications of race, gender, and age when reporting violence in a classroom setting.

Poster #29 West Branch Plum Run: Long-term health assessment of a restored urban stream based on macroinvertebrate community and chemical water quality
Presenter: Miranda Davies
Faculty Mentor: Dr. Megan Fork
Department: Biology

Freshwater aquatic ecosystems are of great importance to humanity. As humans continue to urbanize, streams are at greater risk for degradation. Monitoring water quality provides information that guides the management of streams, which is to preserve or restore them. Not only is this important for management, but also in defining success of restoration efforts. This study focuses on the West Branch of Plum Run, which is a part of the impaired watershed located in West Chester, Pennsylvania. The stream underwent restoration primarily on physical aspects such as: rechanneling, geomorphology, and habitat homogeneity. The macroinvertebrate community and water chemistry were analyzed to assess (1) the current conditions of Plum Run and (2) if stream health changed since restoration efforts. Plum Run remains in poor condition, as no significant changes were observed in the Macroinvertebrate Aggregated Index for Streams (MAIS) score. Conductivity and chloride concentrations continue to rise at dramatic rates despite restoration. Examination of different restoration methods concluded that to achieve recovery of the ecological health of streams, physical restorations should not be the prescribed method, as they are only temporary, costly, and not an effective solution. To bring Plum Run to better health, utilizing methods that focus on improving the biology and mitigating anthropogenic effects on streams will result in long-term stabilization and improved health for not only Plum Run, but for streams globally.

Poster #30 English to ASL and ASL to English using the Deep Learning model
Presenter: Vijayendra Dushyanth Raj Avina
Faculty Mentor: Dr. Md Amiruzzaman
Department: Computer Science

Communication is an essential part of life without which life would be difficult. Also, it would be difficult for two parties to communicate if they do not have a common language. American Sign Language (ASL) is one such form that is not easily understandable by hearing people. It is important to understand what is being communicated correctly. To facilitate this, there is some research done in computer science using machine learning or deep learning process. Many of these researchers concentrated on identifying alphabets or a limited number of signs used in ASL like fingerspelling. In this research, we are attempting to identify word-level Sign Language using Deep Learning (DL) models and add that corresponding word to that ASL video so that everyone can understand what is being communicated. To achieve this, we are training a DL model using the ASL word-level image datasets. We then apply rolling averaging to predict what is being communicated in the video. Also, we are concentrating on producing a video consisting of Sign Language for an audio file using python movie generators, which helps Deaf or Hard-of-hearing people. In the end, the whole work is incorporated inside a web application with the intent to translate ASL to text and vice versa.

Poster #31 Prenatal Effects of Alcohol and Nicotine Exposure via E-Cigarettes on Developmental Milestones and Behavioral Development
Presenter: Drew Belser
Faculty Mentor: Dr. Kristen Breit
Department: Psychology

Alcohol and nicotine are two of the most commonly consumed drugs among pregnant people. Prenatal alcohol exposure can lead to a range of physical, behavioral, and neurological deficits, referred to as fetal alcohol spectrum disorders. Similarly, prenatal nicotine exposure is associated with disrupted development in various neurological and behavioral domains. The popularity of e-cigarettes has offered an alternative way to consume nicotine that is assumed to be safer than traditional cigarettes. However, the potential longitudinal effects of prenatal e-cigarette exposure on behavioral development are not well known. Additionally, co-use of alcohol and nicotine (including via e-cigarettes) is common among pregnant people, partly due to the fact that 40% of pregnancies are unplanned. Despite this prevalence, there is little research to date examining the possible consequences of combined prenatal exposure to alcohol and nicotine on long-term behavioral development. Studies using rodent models can help provide quick, accessible information regarding the potential consequences of prenatal alcohol and nicotine exposure at the levels and routes currently being consumed. This project will use a clinically relevant and effective rodent co-exposure model of vaporized alcohol and nicotine via e-cigarettes in order to examine the potential effects on later-life offspring motor development, coordination, and anxiety-related behaviors. Data are currently being collected and analyzed for all behavioral tasks. These results will help improve public education regarding the potential consequences of prenatal e-cigarette use, particularly when combined with alcohol.

Poster #32 Nonverbal Adults with Developmental Disabilities: Parents' Perspectives and Experiences

Presenter: Ainsley Griffin & Alexander Conzaman
Faculty Mentor: Dr. Sojung Kim
Department: Communication Sciences & Disorders

The purpose of this interview study is to identify the perspectives of parents of nonverbal adults (age 21 or older) with developmental disabilities (DD) regarding communication, literacy, and socialization. Interviewing parents of nonverbal adults with DD is the important first step to design an intervention program because available intervention programs have been developed based on efficacy data from children and adolescents with DD. By interviewing 10 parents of nonverbal adults with DD, the researchers gathered in-depth information pertaining to (1) the importance of continuous support to nonverbal adults with DD, and (2) individualized needs in an intervention program for the target population. The study used a qualitative interview approach, and one semi-structured interview (lasting 1 hour) was conducted with each participating parent. Interviews were video- and audio-recorded and transcribed in their entirety by the first author. A process of inductive, thematic analysis was then used to arrive at themes and subthemes. Preliminary analyses of the collected interviews indicated that the parents' adult children have received varying degrees of social (e.g., adapted Physical Education classes, cooking classes) and communication (e.g., private speech-language therapies) support since high school graduation. However, none of the nonverbal adults with DD have received literacy support. Many parents reported that their adult children's writing and reading skills have noticeably regressed after high school graduation. The findings allow the researchers to design an intervention program entitled Augmentative and Alternative Communication Social Club, which provides nonverbal adults with DD with individualized literacy support by speech-language pathology graduate students.

Poster #33 Identifying Food Preferences and Patterns (Foodways) in Persons with Cystic Fibrosis a Qualitative Study
Presenters: Dr. Patricia Davidson, Dr. Amir Golmohamadi, Hossein Vojoudi; Dr. Dwight Davidson, Paisa Karimzadeh, & Muhamed Ilyas
Department: Nutrition

Background: Disordered eating patterns persist throughout the lifetime of people with cystic fibrosis (PWCF). It is unclear if factors contributing to the focused eating patterns and whether the foundational behaviors are disease related. This qualitative study's purpose was to identify foodways, patterns, and nutritional concerns in PWCF.

Methods: Participants were recruited by invitation through the CF Foundation Community Voice listserv. Semi-structured interviews were conducted with adults (>18 years old) and caregivers of children (< 18 years old) and focus groups with healthcare professionals providing care for PWCF. A planned, validated script of questions was used to obtain information regarding influences on food choices, food habits, and dietary patterns. Interviews ceased with data saturation. After transcribing the interviews and focus groups, factors influencing foodways were evaluated by thematic analysis.

Results: Fifteen caregiver/parents, and 31 adults reflecting the national proportions of racial/ethnic distributions and occurrence of CF participated; ages ranged from 4-74, and 82.6% identified as women. Twelve healthcare professionals (dietitians, social workers, physicians) participated in 3 focus groups. Common factors affecting food choices and preferences for PWCF included medication, taste, texture, swallowing, food insecurity, and time for food preparation. Food insecurity was noted by 26% of PWCF. In contrast, taste, texture, and sensory attributes were not identified by professionals, but they did discuss medication, food insecurity, and food preparation time.

Conclusion: Themes identified in this study suggest the importance of on-going assessment of factors affecting food choices as a means for improving reported health outcomes and quality of life for PWCF.

Poster #34 Exploring the Diversity of Wolbachia in Pheidole Ants (Hymenoptera, Formicidae)
Presenter: Kenya Lovell
Faculty Mentor: Dr. Manuela Ramalho
Department: Biology

Bacteria are an essential component of a healthy organism and environment. The microbiome is thought to play an important role in development, behavior, and evolution of an organism. However, while endosymbionts are common, there is often little known about the role that individual species of bacteria play within the host. One such example is Wolbachia, a common endosymbiont of many ants, but one of which we know little about. The goal of this campaign is to examine how the geographical area that the extremely diverse genus of ant, Pheidole, originated from contributes to the diversity of Wolbachia in this type of host and how the presence of this bacteria affects seed-harvesting behavior. Ant colonies were collected from a range of geographic areas and will be screened for Wolbachia by sequencing of the wsp gene in several ants from each colony. Then, Multi-Locus Sequence Typing of coxA, fbpA, ftsZ, gatB, and hcpA will be conducted to determine a host's individual sequence type so that we can visualize the range of Wolbachia strains present. Unique sequence types will be added into the Wolbachia MLST database, and then used to observe the relationship between geographic location of the host and diversity of the bacteria. As ants are an excellent model organism for studying host-microbe interactions, the information within this study will play an important role in providing insight into the coevolution of Wolbachia and Pheidole ants, significance of this bacteria in its host, and what environmental factors affect the strength of their symbiotic relationship.

Poster #35 Redefining American ginseng harvest regulations: Using size rather than age as a conservation-minded harvest criterion
Presenter: Sage Forsythe
Faculty Mentor: Dr. Jennifer Chandler
Department: Biology

American ginseng's viability is being threatened by overharvest. The enforceable harvest regulation is the "5-year rule," which sets a 5-year age minimum for harvest, but which is not sufficient to prevent population decrease and potential extirpation, because this approach does not consider high variability of ginseng developmental rates across heterogeneous habitats where ginseng grows. Leaf area, a measure of plant size, best predicts the probability of self-replacement in a population. However, leaf area is difficult to measure in the field and is not verifiable at the point of sale. The purpose of this work was to identify easily-measured morphological traits that accurately predict leaf area and that remain verifiable when ginseng is sold. We collected age, leaf area, seed count, and morphological data on the stems and roots of fresh plants (n=90) and a subsample of dry plants (n=30). We performed regressions to determine the best predictors of leaf area, which serves as our best size-based estimate of survival and reproduction. Among the numerous shoot and root traits measured, stalk height is the best simple predictor of leaf area and replacement probability. The development of impactful, size-based harvest regulations is vital in the protection of this ecologically, economically, and culturally-valuable medicinal herb. We propose that an easily-measured, verifiable size-based morphological trait like stalk height be considered when developing conservation-oriented, size-based harvest regulations. A similar size-based approach has been utilized successfully in fisheries science and is likely to provide similar levels of protection in wild-harvested ginseng.

Poster #36 Effects of Co-Exposure to Alcohol and Nicotine via E-Cigarettes during Early Development on Late-Life Drug Metabolism Factors in Mice
Presenter: Samantha Kline
Faculty Mentor: Dr. Kristen Breit
Department: Psychology

Alcohol and nicotine are the most widely consumed substances among pregnant individuals. Prenatal alcohol or nicotine exposure can lead to biological and behavioral alterations among offspring, which are dose-dependent on drug levels consumed by the pregnant person. Electronic cigarettes (e-cigarettes) have become popular because they are assumed to be safer than traditional cigarettes. However, e-cigarettes increase nicotine levels in the consumer's blood more than the traditional routes. Despite this fact, the potential consequences of prenatal e-cigarette exposure remain largely unknown. In addition, alcohol and nicotine are commonly used together, including during pregnancy; yet the potential pharmacokinetic interactions in a consumer's blood and the resulting co-exposure effects on offspring remain unclear. Clinical research is limited in measuring these factors, but preclinical (rodent) models can easily examine factors of drug metabolism. This study used a mouse model to examine whether developmental co-exposure to alcohol and nicotine via e-cigarettes alters serum triglyceride and drug metabolite levels in offspring. Litters were randomly exposed to alcohol, nicotine, the combination, or e-cigarette vehicle during postnatal days (PD) 4-9, mimicking the third-trimester brain growth spurt in humans. Blood samples were collected in the adolescent offspring to examine whether combined alcohol and nicotine exposure may be associated with hypertriglyceridemia. Liver samples were also collected to examine whether developmental co-exposure increases alcohol and nicotine metabolite enzymes. Results are currently being collected and analyzed. These data will elucidate whether prenatal co-exposure to alcohol and nicotine via e-cigarettes could have long-term effects on future substance use factors in affected individuals.

Poster #37 The 3Act Slide Board and its Effects on Balance, Reaction Time, and Vestibulo-ocular Function
Presenter: Moreta Dyke
Faculty Mentor: Dr. Daniel Baer
Department: Sports Medicine

Concussion management and rehabilitation continue to evolve as ongoing research identifies strategies for safe return to sport for concussed patients. The purpose of this study is to evaluate the effects of a novel concussion rehabilitation protocol on balance, reaction time, and vestibulo-ocular motor function (VOMS). Research supports the importance of proper postural control, reaction time (RT), and cognitive functioning during physical activity and sport. Returning to activity before full recovery from a concussion can delay healing, increase the risk of more severe brain injury, and impair RT and balance, increasing the risk for lower extremity musculoskeletal injuries. The 3Act Slide Board is a rehabilitation and sport performance tool allowing for multidirectional movement, while posing a greater cognitive challenge than traditional linear exercises. The International Concussion in Sport Group's consensus statement outlines a gradual return-to-play protocol, highlighted by aerobic exercise such as stationary biking, treadmill running, and resistance training. However, further evidence supports the brain's need to undergo neuroplastic changes, such as those gained through a combination of physical and cognitive activities. Healthy, physically active, college-age participants will be randomly assigned to one of three groups: 3Act Slide Board (experimental group), a gold standard group, and a control group (rest only). Balance, RT, and VOMS measurements will be assessed both pre-test and post-test using Sway Medical's concussion assessment app. This study adds to the literature as the first of its kind to incorporate multidirectional physical activity in combination with cognitive training to analyze potential differences in balance, RT, and VOMS measurements.

Poster #38 A look into the symbiotic relationship between Parasitoid wasps and their endosymbiont, Wolbachia
Presenter: Skylar Eckman
Faculty Mentor: Dr. Manuela Ramalho
Department: Biology

At least 60% of all insect species are estimated to host the intracellular bacteria, Wolbachia pipentis. The consequence and function of Wolbachia infection is not well understood in most of its hosts, but Wolbachia is generally a reproductive parasite, spreading through vertical transmission and sometimes manipulating the reproductive patterns and sex of its hosts. Analyzing the relationships between Wolbachia, their hosts, and the environment propels advancement in areas such as biocontrol, disease control, and pest mitigation.

Parasitoid wasps are important agents in biocontrol, targeting insect larvae to deposit their eggs within and around. Like other insects, parasitoid wasps are known to harbor Wolbachia of the A and B supergroups, with their symbioses ranging from mutualistic to parasitic. This meta-analysis study will apply statistical analysis through the R software to cover all worldwide studies previously carried out on parasitoid wasps and their endosymbiont, Wolbachia. Our goal is to draw connections between Wolbachia diversity and their wasp host traits such as egg deposition and environmental factors. Our results are advancing to serve as a guide to focus efforts on future studies involving this symbiotic interaction (parasitoid wasp and Wolbachia) that is still so little explored.

Poster #39 Effects of Early Developmental Alcohol and Nicotine Co-Exposure via E-Cigarettes on Activity Levels and Anxiety-Related Behaviors
Presenter: Jessica Fetrow
Faculty Mentor: Dr. Kristen Breit
Department: Psychology

Prenatal exposure to alcohol and nicotine are associated with hyperactivity and altered anxiety-related behaviors later in life. The potential effects of prenatal e-cigarette exposure on these behavioral alterations are not well understood. Importantly, co-consumption of alcohol and nicotine are also common, given that 40% of pregnancies are unplanned in the U.S.. However, whether prenatal co-exposure to alcohol and nicotine (including e-cigarettes) exacerbates activity- and/or anxiety-related alterations more than either drug exposure is unknown. Clinical research has historically examined the effects of prenatal alcohol and nicotine exposure separately. However, one can easily examine the effects of prenatal co-exposure on long-term behavioral development by using preclinical (rodent) models, which show high concordance with clinical data in this field. This project examined the effects of developmental co-exposure to alcohol and nicotine via e-cigarettes on later-life anxiety- and activity-related behaviors in offspring. Maternal mice and their newborn pups were exposed to alcohol, nicotine, the combination, or the e-cigarette vehicle during postnatal days (PD) 4-9, which mimics the human third trimester brain growth spurt. Adolescent offspring were then examined for anxiety-related behaviors on an elevated plus maze on PD 28 and examined for activity levels using an open-field activity chamber from PD 29-31. Data are currently being collected and analyzed. This data will provide valuable information regarding whether prenatal co-exposure to alcohol and nicotine via e-cigarettes may increase hyperactivity and/or anxiety disorder vulnerability more than singular exposure to prenatal alcohol or nicotine.

Poster #40 The Magic's in the Making Music: Music, Dance, and Cortisol for Preschool Children Facing Adversity
Presenters: Padmaja Charya & Isabella Capera
Faculty Mentor: Dr. Eleanor Brown
Department: Psychology

A growing body of evidence has highlighted music and dance being associated with stress reduction. However, there is a dearth of research on its impact on children, particularly those exposed to poverty-based stress. This study examined the impact of music and dance activities on preschool age children exposed to economic adversity. Participants included 74 three to five year old children enrolled in an arts-based Head Start preschool who were randomly assigned to a range of schedules of homeroom, music and arts classes. Children's stress levels were measured by collecting salivary cortisol samples to capture the impact of each class type and activity. A first hierarchical linear model (HLM) indicated a reduction in cortisol after music and dance classes relative to homeroom and visual arts classes. A second HLM that included specific music and dance activities revealed reduced cortisol linked to singing, playing instruments, and creating movements. Results indicate that making music and engaging in movement may be linked to stress reduction benefits of music and dance for young children exposed to poverty.

Poster #41 Trauma exposure relates to cortisol levels for children attending Head Start preschool
Presenters: Alyssa Michniewicz & Kristina Martin
Faculty Mentor: Dr. Eleanor Brown
Department: Psychology

Few studies have examined the impact of trauma for young children facing more generalized circumstances of economic hardship (Zimmerman & Messner, 2013) and an even smaller number have examined how experiences of trauma might influence children's physiological stress response functioning in preschool context (Lee & Markey, 2022).

The present study investigated the relation between trauma exposure and levels of the stress hormone cortisol in Head Start preschool for children facing economic hardship. The hypothesis was that trauma exposure would relate to elevations in baseline cortisol or stress levels.

Participants were 50 children, ages 3 to 5, who attended a Head Start preschool. Nearly all children lived in households classified as poor or low-income, defined as less than two times the federal poverty threshold. Caregivers completed a family demographic interview which included The Life Events Checklist for DSM-5 (LEC-5), which was used to measure children's exposure to trauma. Children provided saliva samples at five different times across the day during the fall and immunoassays tested levels of the stress hormone cortisol.

A zero-order correlation revealed a statistical relation between child experience of traumatic events and log cortisol at the start of the preschool day. Results of linear regression modeling indicated that trauma exposure statistically predicted variance in child cortisol levels after accounting for potential demographic covariates. Implications concern understanding the impact of child trauma exposure on stress levels for children attending Head Start preschool and promoting trauma-informed interventions in early childhood.

Poster #42 Effects of Co-Exposure to Alcohol and Nicotine via E-Cigarettes on Maternal Factors in Rats
Presenter: Kelly Johnson
Faculty Mentor: Dr. Kristen Breit
Department: Psychology

Alcohol and nicotine are the two most commonly-used licit drugs among pregnant people. Prenatal alcohol exposure is associated with low birth weight, physical anomalies, growth restrictions, and behavioral impairments. Similarly, prenatal nicotine exposure is associated with premature birth, low birth weight, and behavioral alterations. However, the potential impacts of nicotine use on fetal development have evolved with the popularity of electronic cigarettes (e-cigarettes), which increase drug presence in the bloodstream more than traditional cigarettes. Importantly, co-consumption of alcohol and nicotine is also common among pregnant people. Yet, whether these drugs interact in maternal blood levels remains unknown, because it is difficult to obtain these data in clinical research. Rodent models are ideal for teratology research due to their rapid development and concordance with clinical data in this field. This project will establish a clinically-relevant prenatal co-exposure model of alcohol and nicotine via e-cigarettes in order to measure potential pharmacokinetic interactions in maternal blood levels and offspring development. Pregnant Sprague-Dawley rats were exposed to alcohol, nicotine, the combination, or e-cigarette vehicle throughout pregnancy. Blood samples were collected on the first and last day of vapor exposure to examine blood alcohol concentrations and nicotine levels. Various maternal and gestational factors will be measured to determine whether co-exposure to alcohol and nicotine exacerbates the effects typically observed with single-drug exposures. Data are currently being collected and analyzed. These data will provide valuable information regarding the potential effects of prenatal alcohol and e-cigarette use on maternal blood and birth outcomes.

Poster #43 Antibiotic Resistance Profiles of Evolved Staphylococcus aureus Clones
Presenter: Abiah Mahmood
Faculty Mentor: Dr. Sean Buskirk
Department: Biology

Prior research within our lab has shown that Staphylococcus aureus develops ethanol tolerance following repeated exposure to ethanol. Last semester, I showed that the ethanol tolerant Staphylococcus aureus populations exhibit decreased susceptibility to antibiotics commonly used to treat S. aureus bacterial infections, specifically vancomycin, daptomycin, and teicoplanin. To further characterize the evolved populations, I will now measure the minimal inhibitory concentration (MIC) for randomly selected clones from the evolved ethanol-tolerant S. aureus populations to ensure that the individual clones match the antibiotic resistance profile of the whole S. aureus populations. To obtain clones, each population was streaked onto agar plates and six colonies were selected for each ancestral and evolved population for a total of 96 clones. The MICs for each clone will then be measured with help from a liquid-handling robot (OpenTrons OT-2) that will perform serial dilutions of each antibiotic and inoculate the dilutions with each clone. After incubation for 24 hours, a spectrophotometric plate reader will quantify the growth of bacteria allowing us to determine the MICs for each clone. We expect to observe some variability in MIC between clones from the same population though overall the MICs should fall close to the MIC of the whole population. Overall, conducting this experiment will allow us to confirm whether antibiotic resistance remains consistent across different clones within our S. aureus populations.

Poster #44 Effects of Early Developmental Co-Exposure to Alcohol and Nicotine via E-Cigarettes on Motor Learning in Mice
Presenter: Carley Cirafesi
Faculty Mentor: Dr. Kristen Breit
Department: Psychology

Alcohol and nicotine are two of the most common substances consumed by pregnant people. Approximately 14% of pregnant people report consuming alcohol, with 30% reporting co-use of nicotine. Consuming alcohol while pregnant has been linked to changes in brain and behavioral development, referred to as Fetal Alcohol Spectrum Disorders (FASD), including impaired motor coordination and learning. E-cigarette consumption has become an increasingly popular alternative to traditional cigarettes, but prenatal e-cigarette exposure has been linked to motor development deficits. Importantly, alcohol and nicotine are often co-consumed, yet no studies have assessed the potential consequences of prenatal co-exposure to alcohol and nicotine on motor development. Due to the practical and ethical limitations of clinical research in this field, rodent models are useful in examining potential co-exposure effects on behavioral development. This study used an early developmental co-exposure model of alcohol and nicotine via e-cigarettes to examine motor learning behaviors later in life in mice. The maternal mice and their newborn offspring were exposed to alcohol, nicotine, the combination, or the e-cigarette vehicle from postnatal days (PD) 4-9, which is equivalent to the human third trimester brain growth spurt, a period of critical cerebellar development. Adolescent offspring from each litter later performed a reaching task to measure motor learning. Data is currently being collected and analyzed. These results will determine whether combined exposure to alcohol and nicotine impairs motor development more than exposure to either drug alone, providing important information for the public as well as individuals affected by prenatal drug exposure.

Poster #45 Developing a Co-Exposure Model of Alcohol and Nicotine via E-Cigarettes for Use During Early Development in Mice
Presenter: Jillian Vander Zwan
Faculty Mentor: Dr. Kristen Breit
Department: Psychology

Prenatal alcohol exposure increases the risk for fetal alcohol spectrum disorders, and similarly, prenatal nicotine exposure is associated with gestational complications and altered behaviors. E-cigarettes are a popular way to consume nicotine due to their assumed safety, yet the potential consequences of prenatal e-cigarette exposure are unclear. Importantly, alcohol and nicotine are commonly co-consumed, yet whether prenatal co-exposure to alcohol and nicotine exacerbates the effects of singular drug exposure is unknown. Animal models provide ways to study relevant drug consumption patterns that cannot be studied in humans. To date, no prenatal co-exposure model of alcohol and nicotine has been developed for rodents. The goal of this study was to develop a co-exposure model of alcohol and nicotine via e-cigarettes for use in teratology research. We piloted various doses and mechanical settings in our novel vapor inhalation equipment to mimic clinically relevant blood levels in maternal mice and newborn pups. Groups were exposed to alcohol, nicotine, the combination, or an e-cigarette vehicle during early development. Blood samples were collected to measure blood alcohol concentrations (BAC; Analox Alcohol Analyser) and nicotine levels (MZ Biolabs). The target BAC (200 mg/dL) was achieved with 1% alcohol concentration at 10 L/min airflow. Target nicotine concentrations (20 ng/mL) were reached with a dose of 18 mg/mL at 1 L/min airflow. Importantly, no nutritional confounds were observed. This paradigm can be widely used in research to examine the potential effects of prenatal nicotine exposure via e-cigarettes on brain and behavioral development, alone and in combination with alcohol.

Poster #46 Measuring executive function in LRRK2 mutant mice
Presenter: Anna Defina
Faculty Mentor: Dr. Eric Sweet
Department: Biology

Parkinson's Disease (PD) is a neurodegenerative disease affecting over 10 million people worldwide. The LRRK2 mutation is the most commonly inherited cause of Parkinson's Disease. Mice with the LRRK2 mutation have been shown to lose synaptic plasticity, which leads to altered learning, memory, and other behaviors. Our lab has tested motor learning on mice with the LRRK2 mutation, but we have not yet tested executive function, a common non-motor symptom of PD. Deficits in executive function can include impaired attention, cognitive flexibility, perceptual decision making, reinforcement learning and generally slower information processing speed. A puzzle box is an apparatus with an open, well-lit section and a darker closed off compartment that can be divided with a removable barrier. Providing different barriers in front of the darker compartment for the mouse to overcome acts as the puzzle. For each obstacle, the time it takes for the mouse to enter the safe area is measured. The time it takes the mouse to enter the safe area determines how well it was able to use executive function. In this study we will determine if using a puzzle box is an effective way to test differences in executive function between LRRK2 mice and wild type mice. By determining if the puzzle box is an effective way to measure executive function, we could use it to test drugs that may prevent executive disfunction in Parkinson's Disease.

Poster #47 Does Belonging to a Species Matter to the Bacterial Leaf-cutting Ant Community?
Presenter: Alexandra Gianaris
Faculty Mentor: Dr. Manuela Ramalho
Department: Biology

To understand the evolutionary success of different species, it is important to prioritize the understanding of host-microbe interactions. Unraveling the relationship of the host-microbe interaction is crucial understanding of the evolution of species in their respective environments. Therefore, the present study sought to 1) investigate the associated bacterial communities in four leaf-cutting ant species most frequently found in the southern Neotropics, and 2) compare whether, despite occupying the same ecological niche and being allopatric, belonging to a distinct species is enough to rely on different bacterial communities. Using 16SrRNA amplicom (NGS), the microbiome of different species can be determined, giving headway to potential relationships between species. Leaf Cutter ants present diversity in their native Neotropical region, including four dominant species:- Atta sexdens, Atta levigatta, Atta capiguara, and Atta bispheria. Our results revealed unweighted difference among all four species. With further statistical testing, the most prominent difference was found among the microbiome of the Atta laevigatta and Atta sexdens. This study intends to use bioinformatics to further analyze the relationship among the Atta laevigatta and Atta sexdens. Our results are providing an essential closer look at potential advantages and disadvantages between each respective microbiome of ant species.

Poster #48 The relationship between employees' experience to threatening ACEs and their perceptions of mistreatment at work
Presenter: Samuel Coll
Faculty Mentor: Dr. Megan Nolan
Department: Psychology

Adverse childhood experiences (ACEs) are a risk factor for the development of difficulties across the life course (Felitti et al., 1998; Kessler et al., 2010), including mental disorders, chronic physical health conditions, and health-harming behaviors (Bellis et al., 2019). ACEs are potentially traumatic events occurring in childhood that may generate stress, disrupting typical development (Korotana et al. 2016). ACEs may be differentiated as threatening or depriving, each exerting a partially distinct developmental impact as children (mal)adapt to their environment (Humphreys & Zeanah, 2015; Sheridan & McLaughlin, 2014). For example, past research found that children exposed to threatening ACEs (e.g., physical abuse, domestic violence) over-attended to anger cues (Shackman et al. 2007). This response may have developed as children learned to be hypervigilant to threatening cues in their environment as a protective mechanism.

Despite ACEs association with difficulties across the life course, only one study to our knowledge has investigated their potential effects on workplace outcomes (Kizuki et al. 2019). Building on past research, the proposed study examines the relationship between employees' experiences of threatening ACEs and their perceptions of mistreatment at work. We predict that employees with greater ACEs will report (a) witnessing more incidences of mistreatment between others at work and (b) being the target of mistreatment at work due to increased hypervigilance to potentially threatening cues. Perceptions of mistreatment, in turn, are predicted to impact employee withdrawal behaviors and engagement. To test these hypotheses, measures assessing relevant variables will be administered to approximately 300 participants recruited through MTurk.

Poster #49 Detection of metal ions with a fluorescent sensor in a polymeric medium
Presenter: Bryce Volker
Faculty Mentor: Dr. Jingqiu Hu
Department: Chemistry

This project investigated the photophysical properties of a fluorescent dye, 10-methyl-9-phenylacridinium perchlorate, and its application as a fluorescent "turn off" sensor for the detection of copper ions. The detection is based on the alteration of emission properties of the sensor in the presence of target ions. Once excited at 360 nm, the phenyl acridinium dye in an aqueous solution emits fluorescent light at 510 nm. The emission is enhanced by 3 folds in acidic poly methacrylic acid (PMAA) solution when the polymer residue/dye ratio is 84. The emission of dye/PMAA mixture responded differently to12 metal ions including Mg2+, Ca2+, Ba2+, Sr2+, Zn2+, Cd2+, Hg2+, Pb2+, Co2+, Ni2+, Cu2+, Fe3+. In micromolar concentration range, Cu2+ ions selectively quenched the emission of dye/PMAA mixture. The linear response range to Cu2+ ions is between 1.0 to 10.0 □M. Alternatively, lead, mercury, and cadmium ions significantly enhanced the emission at 510 nm, making the dye/PMAA mixture a promising 'turn on" sensor for toxic heavy metal ions in aqueous solutions. This method is fast, non-toxic, and cost-effective. The method also has implications in environmental safety, including monitoring water and soil quality in real-world samples.

Poster #50 Cortisol Relates to Executive Functioning Growth for Children Attending Head Start Preschool
Presenter: Fola Shokunbi
Faculty Mentor: Dr. Eleanor Brown
Department: Psychology

Children raised in poverty are disproportionately likely to be exposed to chronic environmental stressors that have been shown to negatively impact the body's physiological stress response systems, one of which is the hypothalamic-pituitary adrenal (HPA) axis. This has implications for the development and functioning of the prefrontal cortex and associated executive functions (EFs) or higher order cognitive functions necessary to maintain goal-directed behavior. The present study examines HPA axis functioning, as indicated by levels of the stress hormone cortisol, in relation to growth in EF over the course of a preschool year for young children placed at risk by poverty. Participants were 341 children attending a Head Start preschool. Cortisol was measured via salivary assay at the start of the preschool year. Executive Functioning or EF was assessed via a well validated teacher report measure near the start, middle, and end of the preschool year. Implications concern the efficacy of Head Start interventions for children vulnerable to poverty related risk.

Poster #51 Effects of Prenatal Co-Exposure to Alcohol and THC via E-Cigarettes Alters Anxiety-Related Behaviors in Adolescent Rats
Presenter: Kyle Pruss
Faculty Mentor: Dr. Kristen Breit
Department: Psychology

Alcohol and cannabis are commonly-used licit and illicit substances among pregnant people. Either prenatal alcohol or THC exposure may lead to behavioral alterations, including an increased susceptibility to anxiety disorders later in life. Importantly, more than half of people who report using cannabis during pregnancy also consume alcohol, particularly with the rise of electronic cigarettes to consume THC. Yet, there is sparse research examining the potential effects of co-exposure on later-life anxiety disorder development, a challenging topic to investigate in clinical populations. Preclinical (rat) models can be used to mimic clinical models due to their biological similarities, quick development, and ability to control for confounding variables. This study examined the effects of prenatal co-exposure to alcohol and THC via e-cigarettes on anxiety-related behaviors in adolescent rats. Pregnant rats were exposed to alcohol, THC (the psychoactive constituent of cannabis), the combination, or the vehicle from gestational days (GD) 5-20, mimicking the human first and second trimesters. Adolescent offspring were later examined for anxiety-related behaviors on an elevated plus maze. Prenatal alcohol exposure decreased anxiety-related behaviors and increased risk-taking behaviors among female offspring, whereas prenatal THC exposure increased female time spent in cautionary maze behaviors. However, the combination of alcohol and THC exposure prenatally increased exploratory behaviors among females, thereby further increasing risk-taking behaviors in this group. These results suggest that exposure to either alcohol or THC prenatally may have opposing effects on risk-taking behaviors, while combined prenatal exposure may exacerbate these effects more than either drug alone.

Poster #52 Living with a Criminal Record in Pennsylvania: Investigating the Impact of Clean Slate (Pennsylvania's Automated Criminal Record Sealing)
Presenters: Joseph Murphy & Angelo Saporito
Faculty Mentors: Dr. Simon Condliffe & Dr. Matt Saboe
Department: Economics & Finance

Living with a criminal record can impact many aspects of an individual's life, even years later. This study investigates the experiences of Pennsylvanians living with criminal records with particular emphasis on three areas: access to employment, housing, and education. Investigation will also consider the impact and awareness of Pennsylvania's Clean Slate legislation wherein certain criminal records are automatically sealed after a predetermined period of time. The data for this study was collected by surveying in-person attendees at clinics of Legal Aid of Southeastern PA and phone surveying of former Legal Aid of Southeastern PA clients. Follow-up interviews were also conducted to gain further insight into the personal impact of criminal records. Analysis will explore the role of various demographic factors such as gender, age, and race/ethnicity, and how they relate to differences in survey responses. This study will strive to use its findings to evaluate Pennsylvania's Clean Slate legislation and to inform further policy relating to criminal records.

Poster #53 Understanding the experiences of new fathers' home and work experiences
Presenter: Brenna Kiley
Faculty Mentor: Dr. Megan Nolan
Department: Psychology

Sleep disturbance is commonly experienced among new parents and is associated with adverse effects on health and functioning (e.g., Alvarez & Ayas, 2004; Copinschi, 2005; Harrison & Horne, 2000). While researchers have extensively studied maternal sleep patterns, less is known about paternal sleep profiles during the postpartum period. Furthermore, little research has investigated the impact of sleep deprivation on workplace outcomes for new fathers. Previous studies have found that sleep deprivation increases the risk of human-error-related accidents and produces psychomotor impairments equivalent to those induced by alcohol consumption at or above the legal limit (Goel., et al 2009). So, it is important to connect how sleep disturbance among new fathers impacts their work experiences and how workplace policies may exacerbate or reduce these effects.

The current study will use a qualitative study design to learn about men's work experiences during the first three months of fatherhood. Specifically, we will interview approximately 8 new fathers and ask them questions about the impact of fatherhood on their sleep (schedule/amount of sleep), stress levels, conflict at home, life-to-work spillover, and strain outcomes (psychological, behavioral, and physical). Additionally, we will ask questions about policies, practices, and supports offered by their workplace that they found helpful or harmful. Insights gathered from this work may inform future studies on this topic, ultimately helping new fathers and organizations avoid potentially harmful situations.

Poster #54 World Insect Decline: Impact of Human Constructions on Insect Diversity
Presenter: Jonathan J Morgan
Faculty Mentor: Dr. Manuela Ramalho
Department: Biology

In an effort to combat various environmental and developmental challenges, green infrastructure and urban greening, in combination with existing gray infrastructure, will be essential in the effort to develop and maintain a robust, healthy environment across rural and populous regions. Insects and their global diversity hold a crucial ecological role in different environments and ecosystems that directly impact human health, agriculture, and development. Due to overpopulation, pollution, climate change and overall habitat loss, insect diversity has been on the decline in the last few decades. To investigate the effectiveness of green infrastructure and other forms of infrastructure at housing insect diversity, the experiment will look at different forms of rural, urban and natural infrastructures in the West Chester, PA region. Additionally, this project will investigate how seasonal changes impact the diversity of these insects over time. Pitfall trapping was implemented at these locations to collect the insects. The pitfalls traps were set at each location on the same day for a 48-hour period across several months to allow for adequate data collection across different seasons and weather patterns. Understanding how well different forms of infrastructure promote insect diversity amidst the growing issue of overpopulation, pollution and climate change can guide the development and construction of future green infrastructure to encourage and strengthen insect and environmental diversity in the future.

Poster #55 The Effects of Organizationally Provided Feminine Hygiene Products on Perceived Organizational Support, Job Satisfaction, Turnover Intentions, and Organizational Citizenship Behaviors

Presenter: Winter Elvin
Faculty Mentor: Dr. Megan Nolan
Department: Psychology

More than 800 million individuals are menstruating on any given day. This common experience can have negative implications on women's daily working life experiences including the mood, job engagement, concentration, and productivity (Motro et al., 2019; Sang et al. 2021 Sommer et al. 2016). Interestingly, there has been an increase in advocation for organizations to provide their employees with feminine care products in restrooms, so that they have easy access to menstrual hygiene materials. Non-peer reviewed articles have suggested that providing feminine hygiene products would be an effective, low-cost way to improve employee outcomes, creating a positive work environment that fosters long-term impacts (Lucas, 2021; McEntee, 2017). However, there is no research to our knowledge that has examined the extent to which organizationally provided feminine care products impact employee outcomes.

Using an experimental vignette methodology, the current study will investigate the extent to which organizationally provided feminine hygiene products impact employees' outcomes through perceived organizational support and reduced stress. Compared to participants randomly assigned to the "No Products Provided" Condition, we predict that participants in the "Products Provided" condition will report feeling more supported by the organization, which will negatively impact turnover intentions and positively impact job satisfaction and the likelihood of performing organizational citizenship behaviors consistent with past work that has found POS is predictive of these outcomes (Zhong et al., 2016).

Poster #56 A New Redlining in the Digital Era? A Geospatial Analysis of Redfin Service Locations in the Context of Historically Redlined Areas in the U.S.
Presenter: Isaac Gabriel
Faculty Mentor: Dr. Jongwoong Kim
Department: Geography & Planning

A recent lawsuit accusing Redfin, an online real estate company, of practicing racial discrimination in their services has prompted this study to explore the relationship between historical redlining of city areas and current real estate practices in the United States. Homeownership has become central to the American dream, and landmark civil rights law in the 1960s has made it unlawful to practice housing discrimination on the basis of race, religion, and national origin, granting everyone an equal opportunity to attain homeownership. Before, this practice was pervasive and normative, especially in the lending industry, which used government-commissioned Home Owners' Loan Corporation (HOLC) maps in the 1930s that classified city areas into four grades based on their characteristics, prominently racial composition. These maps informed loan officers, appraisers, and other real estate professionals of the risks from lending mortgage loans for properties in certain city areas but have targeted and harmed minority, Black neighborhoods by declining these life-changing investments. With the current controversy with Redfin, real estate listings across numerous metropolitan areas in the United States, such as New York and Chicago, are examined using various geospatial data collection and analysis techniques to determine patterns that suggest that Redfin treats each listing differently based on its location according to the HOLC maps and the service Redfin provides the buyer in each listing. The findings of this study may have policy/legal implications in the current struggle for fair housing and spark reform in fair housing laws.

Poster #57 Hell on Heels: Female Crime in Country Music
Presenter: Sarah Leinhauser
Faculty Mentor: Dr. Chris Przemieniecki
Department: Criminal Justice

Violence and crime have been the topic of American country music since the emergence of the genre. In the early years, most of these songs focused on telling stories of men killing women, usually their partners, for reasons such as bad attitude to rejection to infidelity. However, in the 1960's, female country artists began to flip the script, singing about their own crimes and experiences with violence. In the 2020's, a category of "angry country women" songs now has become its own subgenre within the country music genre. This project is a content analysis of female country music artists and their songs that reference crime and criminal activity.

Poster #58 Truth and Falsities Behind the Behavioral Analysis Unit (BAU) of Criminal Minds: A Content Analysis
Presenter: Kylie Hoffman
Faculty Mentor: Dr. Chris Przemieniecki
Department: Criminal Justice

Criminal Minds is an American television show centered around the Behavioral Analysis Unit (BAU) of the FBI. The BAU began as the Behavioral Science Unit (BSU) in 1972 where it focused on developing techniques to study criminal behavior such as mass murders, serial rape, kidnappings, and non-violent investigations (white collar crime). The purpose of this study is to examine and compare the actuality of the work of the FBI's Behavioral Analysis Unit (BAU) to the contents of the popular television show Criminal Minds. Ten episodes of the 15-season franchise were analyzed based on the following three criteria: type of crime featured, adherence to the six stages of criminal profiling, and extent of correspondence with local policing agencies.

Poster #59 Ecosystem Services of West Goshen Township Parks: Why Tree Canopy Cover Matters.
Presenters: Gillian Perrotta, Dante Fruncillo, & Bakr Salman
Faculty Mentor: Dr. Melanie Vile
Department: Health

Parks and their associated trees are important to both public and planetary health. Park design, however, is usually planned from an economic perspective (e.g., mowing up to a streams edge as opposed to maintaining a riparian buffer). Park design should be directed to achieve specific goals, such as mitigation of heat, climate, and stormwater, provision of green spaces that are beneficial to pollinating insects and other wildlife, and accessibility to all demographics. Recently, WGT has conducted a survey of tree canopy cover, which is the layer of leaves, branches, and stems of trees that cover the ground when viewed from above, and a cost-benefit analysis to help guide future improvements to all 14 parks. Forestry experts recommend at least 30 % tree canopy cover. Tree canopy cover ranged from 4.1 % at the Dog Park to 51 % at Barker Park, with all but one park either at or below the recommended 30 % tree cover. The benefits of trees in any community are immense. In addition to the benefits listed above, treed parks absorb noise, reduce air pollution, prevent soil erosion, shield children from UV radiation, reduce violence, increase property values, and help people get outside and engage with their community, just to name a few. These data will help WGT target areas that need tree plantings, such as the dog park – pooches need shade too!

PERFORMANCE PRESENTATION ABSTRACTS

Performance #2 Body of Choreographic Work: a painting of clarity, assimilation, this safe place, when it all comes to a close
Presenter: Thomas Gryga
Faculty Mentor: Professor Maria Urrutia
Department: Theater & Dance

Dance has an infinite number of possibilities when it comes to movement. When I think about dance and choreography, I am always interested in exploring something new and pushing myself outside of my comfort zone. Throughout my time at West Chester University, my work has assisted in establishing my practice as a dancer and choreographer. My creative process is founded with a structure for the dancers to move inside of thus giving them agency in their own bodies. These structures form the foundational outline to which I then build upon with layers and dimensions. This choreographic process opens the opportunity for unpredictability and an unimagined movement language. This practice for the dancers provides freedom to explore different movement vocabulary that allows for the work to look different each time it is performed. In addition to the movement investigation, my process is supported by extensive journaling, visual exploration and theoretical research. These elements allow me to enter the studio with clarity of direction for each of the sections being developed. Specifically, visual exploration allows space to establish the overall aesthetic. I find that when these small details are combined together the works' meaning and context are fully revealed. Recently my research leans into the examination of technology and its impact on society. A project that manifested from this research is represented in my work *assimilation*. In another work, *when it all comes to a close*, I invited the audience to reflect on today's highly technological society through the movement phrasing and organization of bodies in space. Technology has changed the world and continues to evolve every day. Analyzing these ideas through my work has allowed me to further develop my choreographic process. As I continue to grow as an artist, I hope to keep dancing and creating in the future.

Work of Art #2 Home
Presenter: Noah Burns
Faculty Mentor: Professor Kate Stewart
Department: Art & Design

I am submitting my mural for the Friends Association of West Chester for the SRCA Awards. The mural is the culmination of almost a year's worth of planning, revision and painting that exists as more than just a mural. Through the combined efforts of me, my family and friends, the Friends Association and with help from Professor Kate Stewart, I was able to create a piece of art that promotes positive conversations about homelessness, housing rights, and representation within our community.

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