
University of Findlay
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20th
20th ANNUAL SYMPOSIUM FOR
SCHOLARSHIP & CREATIVITY
FRIDAY, APRIL 10, 2026
8:00 AM TO 5:00 PM
University of Findlay
SYMPOSIUM FOR SCHOLARSHIP & CREATIVITY | 2024

Contents

Schedule of Events

Time	Event	Place
1:00-3:20 p.m.	**Oral Presentations** 1:00-1:20 p.m. 1:30-1:50 p.m. 2:00-2:20 p.m. 2:30-2:50 p.m. 3:00-3:20 p.m.	**Davis & CBSL**
3:30-5:00 p.m.	**2026 Student Art and Design Exhibition**	**GFAP, Lea Gallery**
3:30-5:00 p.m.	**A Showcasing of Recent Innovations to the Campus Hoop House**	**Hoop House**
3:30-5:00 p.m.	**Poster Presentations**	**Croy**
3:30-5:00 p.m.	**Reception**	**Croy**

Oral Presentations

1:00-1:20 p.m.

CBSL 220
Commencement – Implementing Student-Athlete Stoles at UF
Zoya Winkelfoos
Mentor: Amy Rogan

University of Findlay student-athletes make up 13.9% of the population and put in up to 16 hours a week in season and eight hours a week in off season towards their respective sports. In addition, student-athletes spend 40-65 hours a week on academics and average 15 credit hours per semester. The proposal of student-athlete stoles for UF commencement is meant to recognize that hard work and start a tradition at UF that will inspire current students and motivate potential Oilers. Using organizational communication skills, this project explains the process of researching the need and rationale for such a proposal as well as the proposal, approval, and implementation process. The work put in outside of the classroom is continuously leading teams to conference titles and NCAA appearances year after year. For example, in the last four years, Oiler athletics has brought home five regular season titles, 22 G-MAC tournament/meet titles, two regional titles, and three individual national titles. These stoles on graduation day would be a way to visibly recognize student-athletes to the Findlay community and showcase the commitment the student-athletes have shown throughout their years at UF.

CBSL 221
Sound Communication: Developing a Poster Guide to Raise Awareness of Communication Barriers in Sonography
Alivia Penman
Mentor: Amy Rogan

Effective Communication in diagnostic imaging departments is crucial for patient safety, workflow efficiency, and diagnostic accuracy. This capstone project investigates how communication barriers in sonography such as unclear handoffs, hierarchical dynamics, inconsistent protocols, and a high-pressure work environment can be addressed practically and accessibly for clinical staff. The project involves creating an evidence-based poster guide for sonographers working in fast- paced clinical settings to reinforce what experienced sonographers know and what students need to continue to practice. This project identifies common communication breakdowns and the impact on workflow, diagnostic delays, repeated examinations, and patient care. Lessons highlight the importance of standardized handoff procedures, teamwork, and clear communication among sonographers, radiologists, physicians, and other healthcare professionals. The poster translates research into brief and visually engaging content that is easy to reference during work. It addresses common communication barriers and provides actionable guidelines to enhance communication, raise awareness of overlooked issues in clinical culture, and hopefully promotes behavioral changes. It will be low cost, and easily implementable to support safer practices and to improve workflow in diagnostic imaging departments. Through this project, it became clear that communication challenges often arise not from lack of knowledge but from high workloads, limited time, hierarchical structures, and inconsistent handoff processes. Simple, clear, visual reminders can improve understanding and adherence to effective communication practices across the care team. Overall, the project demonstrates that visual aids like posters can help the overall culture of communication, teamwork, and patient centered care, even in unpredictable and resource-limited clinical environments.

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Oral Presentations (Continued)

CBSL 222
Exploring the Impact of Using Art to Improve Mental Health and Well-Being
Anna Davies
Mentor: Robin Walters-Powell

Research suggests that creative expression, specifically through arts activities, may be associated with increased well-being. Art provides an outlet for both emotional expression and improved regulation, particularly for processing negative or overwhelming emotions (Jean-Berluche, 2024). This project represents the findings of a case study done on Awakening Minds Art, a local agency that provides art services to various populations in Hancock and neighboring counties. In specific, this case study explored the effects of participation in visual arts activities on measures of mental health and overall well- being.

CBSL 232
What's the Verdict? Are you Guilty of the CSI Effect?
Joslynne Frazier, Luke Hootman, Donavyn (Ayres) Watts, and Julianna Grindle
Mentor: Robert Postic

For the last two decades, crime scene investigation has been dramatized by television shows. This research aims to improve the general public's understanding of crime scene investigation (CSI). To do this, we examine in detail the investigative process from the moment a crime scene is discovered to the time a case enters the courtroom. We aim to go through the steps crime scene investigators take to help solve crimes and, in the process, clear up misconceptions about CSI. CSI is an important part of the American justice system which everyday individuals are likely to encounter during jury service. An accurate understanding of the processes of CSI is thus instrumental in ensuring an accurate verdict. Through this research, it has become apparent that there is a relative lack of knowledge regarding the procedures of CSI in the general public. This lack of knowledge has highlighted the ways in which forensic science must be discussed in the courtroom in order for a jury to accurately understand the information presented to them. By better understanding the level of knowledge the general public has in the field of forensic science, investigators may better suit their explanations presented to a relatively novice group of individuals. In turn, better communication of forensic information will result in a higher understanding of the subject within the jury, resulting in a more reliable verdict that falls in line with the evidence provided.

CBSL 237
Analysis of the Environmental Impacts of Costa Rican Canned Pineapples
Allyson Patterson
Mentor: Justin Richardson

After seeing firsthand large scale pineapples fields in Costa Rica, there was an inspiration to look further into their impact. Canned pineapple can come from a multitude of brands and locations. What is the environmental impact of growing, packaging, and shipping Simple Truth and other brands of canned pineapples in Costa Rica? Through a literature review and analysis, articles and research papers were used to answer the question. Canned pineapples bring their direct effects on the local ecosystem in Costa Rica and non-direct effects. A travel trip to Costa Rica gave a firsthand account on these effects. During this project, real world applications of environmental impacts allowed for understanding to occur. This project led to a new perspective on the real cost of imported foods and how the environment can be affected by large growing fields, distribution facilities, and major shipping facilities.

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Oral Presentations (Continued)

Davis 181
The Evolution of Dressage: A Comparison of Classic and Modern Dressage on the Equine Athlete
Sara Heeter *◊
Mentor: Robin Koehler

Within the last few decades, the topic of horse welfare and ethics has been in the spotlight. More specifically, most of the horse industry has issues with how the horses are prepared for higher level dressage movements, such as concerns about training too fast, or training in a way that will not set the horses up for a long, successful career. Many claim that older trainers and horses trained with older methods not only look nicer and more relaxed but are better and healthier in the long term of a horse's career. These older methods and trainers that follow them fall under the term "Classical Dressage" while the newer, more modern techniques are called "Modern Dressage." This paper hopes to not only give differences between Classical and Modern Dressage techniques, but to develop an understanding of when the change happened. Furthermore, this paper hopes to showcase the difference in riders and horse between Classical and Modern Dressage techniques, and how this may have affected dressage tests and competitions throughout the 20th century.

Davis 186
Antipsychotics in Dementia: Harmful or Helpful?
Kameryn Moening, Asia Penn, and Abigail Aulby
Mentor: Charles Mosler

The use of antipsychotic medications in patients with dementia represents a complex area of clinical decision-making due to associated boxed warnings and guideline recommendations. This project aims to demonstrate that antipsychotic use in dementia is not a strictly black-and-white decision but instead requires a patient-centered approach guided by clinical judgment. By exploring clinical scenarios and available evidence, this project highlights the importance of individualized risk- benefit assessment when managing severe behavioral and psychological symptoms of dementia. Emphasis is placed on the role of the healthcare team in considering patient-specific factors, symptom severity, and quality-of-life outcomes. Overall, this project reinforces the need for thoughtful, case-by-case decision-making rather than rigid adherence to guidelines alone.

Davis 188
Differences in Discourse Patterns in Teaching Countable and Uncountable Nouns Between Native and Non-Native English Teachers on YouTube
Yu Otsuki
Mentor: Jennifer Fennema-Bloom

According to previous studies (c.f. Walkinshaw and Oanh, 2014; Wang, 2021, and Beverborg and Müller, 2024), both native and non-native language teachers in L2 classrooms have unique teaching advantages. However, the studies that conduct a side-by-side comparison on their language use are limited. Thus, the purpose of this study is to investigate the characteristics of their discourse patterns to identify advantages and disadvantages that are outlined in the literature. Two videos uploaded on YouTube were chosen for this study. Both videos teach English countable and uncountable nouns; however, one video is presented by a native English speaker while the other by a non-native English speaker (Japanese). The audio scripts were coded by Jefferson's (1984) transcription and analyzed by Gee's (2011) discourse tools. The results reveal that there are marked differences between the two discourse patterns such as their target learners, teaching style, goals, and the ways they build their identity and relationship with their students that lead to advantages and disadvantages in the teaching of English as a second language.

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Oral Presentations (Continued)

Davis 1121
Molecular Modeling of All-Trans Retinal Structural Changes Through Spin Flip Time Dependent Density Functional Theory (SF-TDDFT)
Madison Cresanti *◊
Mentor: John Payton

Cellular interaction with excited retinal intermediates has been proven to be toxic to cells. Excitation of retinal is presumed to undergo fragmentation and radical species generation due to the presence of an aldehyde group in the molecular structure. This computational project proposes quantitatively mapping the excitation state pathway through spin flip time dependent density functional theory (SF-TDDFT). SF-TDDFT is utilized in quantum chemistry to study molecular excited states involved in changing the spin states of a molecule or fragments generated. In this aspect, SF-TDDFT will be implemented to calculate absorption spectra and excitation energies of ATR and photo isomers to assess the resulting photochemistry of radical generation. Radical species generated through oxidation, like aldehyde fragmentation presumed in retinal excitation, are known to have toxic effects at the cellular level. The lack of an apoptotic response at the cellular level when exposed to pre- radiated retinal implies a potential counteraction to mitigate reactive oxygenated species (ROS) impact. Mapping fragmentation and excitation using SF-TDDFT will provide future opportunities to quantify data of the excitation pathways and begin design of intermediate trapping. Calculations performed during this project can serve as a basis to creating a future experiment of investigating cellular processes behind alleviating the impact of ROS and radical presence in the cell. Understanding this process can ultimately relate back to better understanding of the photochemistry to excited retinal from blue-light exposure. Such quantum chemical computations can contribute to further understanding of the health impacts of excited retinal and blue-light exposure on the visual function.

Davis 1129
Effects of Phytoremediation on Horizontal Gene Transfer
Sierra Kirby *◊, Allison Diller *◊, Morgan Koenig *◊,
Kaitlyn Siefert *◊, Payton Miller *◊, and Mackenzie Sirks *◊
Mentor: Bethany Henderson-Dean

The widespread use of antibiotics in medical, veterinary, and agricultural practices has resulted in the accumulation of antibiotic residues within aquatic systems. This environmental contamination fosters the development and dissemination of antibiotic-resistant bacteria and antibiotic resistance genes, posing significant ecological and public health challenges. This study investigates the potential role of aquatic plants, specifically *Vesicularia montagnei* and members of the Lemnoideae family, in influencing horizontal gene transfer (HGT) among bacterial populations. Two *Escherichia coli* strains were employed: an F+ tetracycline-resistant donor capable of HGT and an F^- ampicillin-resistant recipient. We examined whether co-cultivation with aquatic plants promoted the emergence of dual-resistant strains, signifying HGT. Preliminary data revealed an initial increase in HGT activity within plant-containing systems during the first 24 hours, followed by a progressive decline in total bacterial populations over a 10-day observation period. These trends were not observed in control systems lacking aquatic plants, where bacterial populations and HGT activity remained relatively stable. Collectively, these findings suggest that aquatic plants may influence microbial community dynamics by initially facilitating gene exchange before contributing to the suppression of bacterial abundance and a potential reduction in antibiotic resistance gene prevalence over time. Ongoing research seeks to determine how plants influence HGT, with the goal of informing phytoremediation strategies to reduce antibiotic resistance in aquatic ecosystems and protect public health.

Work to be presented at the National Conference on Undergraduate Research (NCUR), April 13-15, 2026, Richmond, VA.

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Oral Presentations (Continued)

1:30-1:50 p.m.

CBSL 220
Speak UP: Promoting Cultural Spaces Through Speaking Events
Grant Goodfellow
Mentor: Amy Rogan

The field of nonprofit public relations and marketing is rapidly evolving. An increase in overall marketing content has made it difficult for nonprofit organizations with limited resources to compete for attention. As diversity and inclusion have become increasingly controversial, one local nonprofit is providing a safe space for the public to explore these topics. This capstone project utilized organizational communication skills to help the Black Heritage Library and Multicultural Center (BHLMC) produce a community event called Speak UP to raise awareness of its purpose and cause. BHLMC has been serving the community since 1981 by providing a lending library and displaying artifacts from multiple cultures. Speak UP: Imagine, Innovate, Inspire on March 13 involved multiple speakers from the surrounding area sharing personal life experience, information, and advice to the audience. The presentations delivered by the speakers also included content about interpersonal and intercultural communication. Organizing a speaking event in coordination with the BHLMC requireds the use of professional communication both within the organization and with external stakeholders. Not only did planning this event require the use of organizational communication skills, but the promotion of the event included a campaign to appeal to University of Findlay students as well as Findlay community members. This project explains the processes used to organize and execute a community event crucial to the mission of the BHLMC.

CBSL 221
Preparing for the Professional Broadcasting World: Producing a Professional Demo Reel for Industry Entry
Andrea Hoffman
Mentor: Amy Rogan

As the media industry becomes increasingly competitive and digitally driven, emerging broadcast journalists must present more than a resume to secure employment. This capstone project examines how a strategically constructed professional broadcast demo reel can function as the primary hiring tool for entry-level broadcasting positions. Guided by research on newsroom hiring practices, multimedia journalism standards, and industry employment trends, the project produced two deliverables: a 2–3 minute sports-focused reel and a 7–9 minute extended version demonstrating broader reporting versatility. The reels integrate anchoring, sideline reporting, live shots, feature storytelling, and interview segments, reflecting proficiency in writing, editing, and digital production. Rather than serving as a simple compilation of highlights, the reel functions as a curated professional narrative aligned with current employer expectations in broadcasting.

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Oral Presentations (Continued)

CBSL 222
The Impact of Mental Health Interventions on Adolescents' Behavioral and Emotional Progress in The Marsh Foundation
David May
Mentor: Robin Walters-Powell

This study explored how mental health interventions affected the emotional and behavioral growth of adolescents living in an all-male residential group home at The Marsh Foundation. The participants included students with behavioral challenges as well as those involved in the Juvenile Sex Offender Program. Many of these young people faced mental health challenges due to trauma, neglect, or family instability. The purpose of this research was to examine how consistent and targeted mental health support, such as counseling or group therapy, supported adolescents' emotional stability and behavioral development over time. The study used both quantitative data and personal narratives to understand the experiences of participants, combining assessments and survey responses.

CBSL 232
How Does Partisan Gerrymandering Affect Minority Representation in State Legislatures?
Andrew Williams
Mentor: Robert Postic

This research examines how partisan gerrymandering affects minority representation in state legislatures. Gerrymandering has become a common tactic used by politicians to influence electoral outcomes and shape partisan advantage within elections. Gerrymandering can be used to unproportionally represent different districts, and this tactic has been used to negatively impact minority influence. Through analysis of redistricting practices and existing legal frameworks, this study finds that partisan gerrymandering frequently reduces the broader political influence of minority communities, even when the number of majority-minority districts increases. These findings are valuable, as it shows how politicians manipulate district lines, in order to receive a certain outcome. This practice allows for an unchecked balance of power, and causes a lack of minority representation.

CBSL 237
Musings of a Frustrated Cyborg: (Neuro)Divergent Storytelling and Meaning-Making Though Substack
Noah Fischbach
Mentor: Harley Ferris

The power of storytelling is an essential part of what makes us human. From our nature as storytellers, we often express ourselves through the craft of writing. Whether it be the right word or a metaphor that perfectly describes our lived experience, we can unlock a deeper understanding of the world around us as well as important revelations about ourselves. As a student in the Master of Arts in Rhetoric and Writing program (MARW), I use writing, particularly through the public medium Substack, to reflect on art and spirituality through a neurodivergent lens. Through Substack, I am able to rely on my creative instincts, such as my love for poetry, while remaining rooted in my scholarly work. The personal nature of the platform allows me to create purposeful and meaningful content while also being able to experiment and engage with my sense of self within a growing community of like-minded people. My experiences will serve as stepping stones into non- traditional ways we make meaning of and with our lives, exemplifying the University's mission to prepare students for meaningful lives and productive careers.

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Oral Presentations (Continued)

Davis 102
Creating Chaos: Exploring the Rössler Attractor and an Original Chaotic System
Delaney Thomas
Mentor: Aaron Blodgett

Chaos theory is a branch of mathematics that focuses on underlying patterns and deterministic laws of dynamical systems that are highly sensitive to initial conditions. One classical example of such behavior is the Rössler attractor, a chaotic system of three nonlinear ordinary differential equations originally studied by Otto Rössler in the 1970s. This study investigates the Rössler attractor by exploring its topological template, fixed points and their stability, as well as how varying parameter values alter first return maps. An original chaotic system will also be introduced and analyzed using similar techniques with an emphasis on how its behavior changes across parameter families.

Davis 181
Eyes in the Canopy: Examining Species Interactions Across the Temperate Forest Canopy
Keira King *◊
Mentor: Benjamin Dolan

This research investigates the niche partitioning involving tree-dwelling species such as *Sciurus niger, Glaucomys volans,* and *Procyon lotor* at varying canopy heights of a temperate forest environment. The objective of the research is to assess how each species may be partitioned within the canopy to examine if canopy height influences certain competitive interactions or gives rise to certain ecological niches. This could give insight to population fluctuations and species distribution patterns in a forest ecosystem. To achieve this, 8 motion-capture cameras were installed at differing heights between two tree species, *Acer saccharum* and *Quercus rubra*. Each photo taken includes time stamps which allow for analysis of time intervals between species appearances. These intervals then can be used to find patterns of temporal avoidance which can suggest competitive exclusion or interference. This study aims to detect competition intensity changes with vertical stratification and offer better knowledge about niche partitioning of these layers.

Davis 186
Inquiry-Based Learning in Science Education
Jo Mader
Mentor: Julie McIntosh

Inquiry-based learning is a teaching method that prioritizes student ideas, questions, and analyses. This teaching method focuses on having students investigate open-ended questions or problems, moving them from general curiosity to critical thinking and understanding. It aims to combine student-centeredness, collaboration, critical thinking, and constructivist theory by utilizing five phases. These phases are orientation, conceptualization, investigation, analysis, and conclusion. These phases must be completed one after another, but they are flexible in that a student may go back to a phase they already completed before moving on to the next one. This presentation aims to explain the phases of inquiry-based learning, provide an example, and explain why it is a beneficial teaching method to use in science classes.

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Oral Presentations (Continued)

Davis 188
Using Goffman's (1974) Frame Analysis, and Gee (2010) Discourse Tools to Examine How Saudi Tourism Ad Breaks Foreign Misconceptions and Stereotypes
Abdullah Alsaidan
Mentor: Jennifer Fennema-Bloom

Saudi Arabia officially opened tourism by launching a tourist visa in September 2019. Though tourism steadily increased by 29.7 million in 2024, in order to reach a large western population, in 2025 the Saudi Tourism Development Fund launched an advertisement titled "It is not about what you hear, it is about being here." This advertisement was designed to combat foreign misconceptions and stereotypes regarding Saudi culture. Using Goffman's (1974) frame analysis, and Gee (2010) discourse tools, this study analyzes this advertisement to identify how the advertisement debunks commonly held stereotypes about safety, wealth, lifestyle, and geography, and misconceptions regarding women's role in society using intonation, visuals, and humor.

Davis 1121
Investigating the Catalytic Properties of Metal-Organic Framework UiO-66 for Oxidative Desulfurization
Audrey Keplar *
Mentors: Hafed Bascal and Maryam Yousif

Metal–organic frameworks (MOFs) have emerged as promising catalysts for oxidative desulfurization (ODS) due to their tunable structures, high surface areas, and metal-based active sites. Sulfur-containing compounds in fuel oils contribute significantly to air pollution and acid rain when combusted, motivating the development of more efficient desulfurization methods. Transportation vehicles and industrial activities are common sources of pollution. Sulfide compounds in fuel oils can be oxidized into sulfoxides, which can be further oxidized to sulfones. The sulfone products can then be extracted to produce cleaner fuels. The metal node of the MOF reacts with hydrogen peroxide to create reactive oxygen species, which are responsible for oxidizing the sulfide compounds. The zirconium-based MOF UiO-66 is often used for this purpose. The UiO-66 MOF contains a zirconium octahedral node ($Zr_6O_4(OH)_4$) coordinated to twelve 1,4-benzenedicarboxylate (BDC) linkers. Changing the linkers on the MOF can tune its structure and performance in catalyzing oxidative desulfurization reactions. The computational chemistry software Gaussian was used to perform DFT calculations and measure the ionization energy, HOMO/LUMO energies, and redox potential of UiO-66. After these initial calculations, the structure of UiO-66 was altered by replacing the BDC linker with other linker molecules or removing linker molecules altogether. The altered UiO-66 structures then underwent DFT calculations. The aim of this research is to use computational chemistry to observe the properties of the UiO-66 MOF and understand how altering the structure can enhance its ability to act as a catalyst in oxidative desulfurization reactions.

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Oral Presentations (Continued)

Davis 1129
Correlation Between Biofluorescence in Fishes and Their Habitat, Taxonomy, and Morphometric Regions Exhibiting Fluorescence
Ainsley Roush *◊ and Harper Quigley *◊
Mentor: Justin Rheubert

Biofluorescence in fishes has been increasingly studied in recent years. Because this subject is still relatively novel, this phenomenon is not extensively understood. Previously conducted studies have recorded the presence of biofluorescence in numerous fish species across different taxa, habitats, and life stages. Based on this information, hypotheses have been proposed for the purpose of biofluorescence in fishes, but it has yet to be fully understood. The present study is a meta- analysis of published literature to identify correlations between the presence/absence of biofluorescence and characteristics such as the morphometric regions exhibiting fluorescence, habitat, sexual dimorphism, life stage, and taxonomy. Preliminary results demonstrate that biofluorescence is widespread throughout taxa residing in a variety of habitats, encompasses numerous wavelengths across the visible light spectrum, and, across taxa, appears in each morphometric region. Information gleaned from this study may be impactful for enhancing the understanding of the biology of fish species and identifying gaps in knowledge that require further research.

2:00-2:20 p.m.

CBSL 220
Exploring Grief Through Narrative Film: The Development and Production of *What We Kept*
Richard Mast
Mentor: Amy Rogan

Grief is a deeply personal experience, yet social and cultural expectations also shape it. *What We Kept*, a narrative-driven short film, explores this through a young man grappling with the loss of his partner in both the past and present. The short film illustrates how grief is both internal and relational, affecting behavior and emotional connection. The project draws on research in psychology, grief studies, and film theory to inform character interactions, narrative structure, and techniques. This short film demonstrates how a narrative feature can contextualize experience into something that emotionally resonates with the audience, offering up a psychological view into the reality of loss. The project includes a partnership with a (film production company) to produce a professional film using storytelling techniques and digital media skills. The project outlines the process from concepts to writing, planning, directing, and ultimately, editing the film.

CBSL 221
Placement Stability Impacts on the Foster Child's View of Family
Devyn Olson
Mentor: Robin Walters-Powell

This study explored how the different resources and interventions that SAFY provided to foster children can help maintain placement stability and give a positive outlook on a sense of family. This study may help SAFY come up with better interventions and services to help in the foster child's placement stability and sense of a better well-being when it comes to family.

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Oral Presentations (Continued)

CBSL 222
Impacts of Physical Activity and Social Connections on Quality of Life in Nursing Home Residents
Kayleigh Klir
Mentor: Robin Walters-Powell

This research proposal explored how physical activity and social connections impact the quality of life of nursing home residents at Good Shepherd Home in Fostoria, Ohio. The geriatric population that usually resides in nursing homes is a growing population that needs to be explored. Gerlach et al. (2022) mention that with aging comes many different challenges that can impact mental health in a negative way, including loss of social support, increased illness burden, and functional decline. The study was guided by the systems theory, and the research examined how relationships, environment, and organizational factors interact to impact a resident's quality of life. A quantitative design was used that involved a semistructured survey and secondary data from biopsychosocial assessments. The study consisted of voluntary participants with confidentiality measures in place to protect the participants. Data was analyzed to identify specific patterns between physical activity, social connections, and quality of life. This study may help future researchers and care facilities by identifying factors that promote autonomy, connection, and satisfaction among nursing home residents.

CBSL 232
Evolving Justice: A Historical Analysis of Jury Development, Reform, and Future Directions in the United States
Kayla Dykin *◊
Mentor: Elizabeth Buchanan

The jury system in the United States has undergone significant transformation since its origins in English common law. Over time, juries have shifted from small, community-based panels to structured institutions meant to reflect fairness, equality, and civic participation. However, the system has faced persistent challenges, including underrepresentation of minorities and women, bias in jury selection, and the decline of jury trials. In response, many states have introduced reforms to address these issues and strengthen public confidence. States such as New Jersey and Arizona have implemented innovative measures, including revising jury selection procedures, increasing juror compensation, and eliminating peremptory challenges to reduce bias. Other states, like California and Washington, have followed with diversity and inclusivity initiatives. Despite these improvements, disparities across jurisdictions remain, limiting the overall effectiveness of reform efforts. This study examines the historical development of juries, key challenges leading to reform, and the impacts of current initiatives on fairness, representation, and public trust. By analyzing state-level reforms and their outcomes, this research highlights the need for continued efforts to ensure equal representation, improve court efficiency, and preserve the integrity of one of the most fundamental elements of the U.S. justice system.

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Oral Presentations (Continued)

CBSL 237
Reflections on the 2025 Kake Bridge Program
Chloe Teoh and Alexis Hart
Mentor: Hiroaki Kawamura

The Kake Bridge program is a 16-day summer cultural exploration experience in Japan. This educational exchange between the University of Findlay and the Kake and Junsei Educational Institutions has been around since 2003. While the institutions themselves were founded in 1961, this connection with the University of Findlay has made long lasting impacts within the last couple of decades. The Kake bridge program allows students, staff, and faculty to experience Japanese culture such as the food, nature, educational systems, local governments, and most importantly, the people. One of the main focuses of the program is to visit different universities and interact with the students. In addition to the Japanese students, UF's group is conjoined with students from Brazil, allowing for exposure to Brazilian culture as well. The program has a counterpart called the Kake Ambassador Program, and through that program, UF hosts students and faculty from Kake, in return, over the fall semester. Participants go into the program expecting to learn about Japanese culture and how different it is from American culture. Not only do students, staff, and faculty get to experience the cultures of Japan, but they also get to build lasting friendships with the students from Japan, Brazil, and even their own group from UF. Reflecting on the experiences through this exchange program 9 months later, the presenters believe that it was truly an unforgettable experience and would encourage anyone who is interested in making great memories, to take this opportunity.

Davis 181
Macroinvertebrate Populations in Rural Versus Urban Sites
Haven Knippen *◊
Mentor: Lauren Sandhu

Freshwater ecosystems are influenced by the species richness of macroinvertebrates within a water system, serving as an indicator of water quality and ecological health. Macroinvertebrates, commonly used in bioassessment, respond to environmental changes such as pollution and habitat degradation. Water quality can be determined by the species richness of macroinvertebrates within a water system. Macroinvertebrate communities are impacted by pollutants such as excess sediment and nutrients, which are found in waterways in Northwest Ohio. Water quality parameters such as pH, dissolved oxygen, and total dissolved solids can be measured to evaluate waterway health, in addition to surveying the macroinvertebrate community. Total dissolved solids (TDS) are a measure of organic and inorganic materials in water, including calcium, magnesium, potassium, sodium, nitrates, chlorides, sulfates, carbonates, and bicarbonates. These dissolved solids can occur naturally, or they can be a result of human activities such as agricultural practices, urban development, and pollution. This study serves to compare macroinvertebrate populations, as well as other water quality parameters, in rural versus urban sampling sites.

Davis 186
Empowering High School Students with Adverse Backgrounds Through Research-Informed, Relationship-Centered Teaching
Lucas Recker
Mentor: Julie McIntosh

High school educators increasingly work with adolescents whose academic performance and classroom behavior are shaped by trauma, instability, and chronic stress. These experiences, which are documented in research on Adverse Childhood Experiences (ACEs), executive functioning, and adolescent brain development may disrupt attention, working memory, emotional regulation, and motivation during a period already marked by rapid cognitive and social change. This presentation explores how secondary teachers can leverage evidence-based practices to support struggling students while maintaining a meaningful learning environment. By integrating research with practical application, this session equips high school educators to respond to student struggle with empathy and structure, creating classrooms where adolescents from difficult backgrounds can rebuild confidence, re-engage academically, and envision themselves as capable learners.

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Oral Presentations (Continued)

Davis 188
Situated or Simulated Meaning: A Discourse Analysis of Frictionless AI Intimacy
Timothy Cunningham
Mentor: Jennifer Fennema-Bloom

This research performs a discourse analysis of the AI companion app Nomi to determine if Large Language Models (LLMs) are capable of genuine co-construction of meaning. Using James Gee's (2014) theoretical toolkit, the study analyzes a semi- structured interaction between the researcher and an AI persona. This research argues that AI companions facilitate a frictionless relationship through simulated meaning rather than authentic negotiation, Findings reveal three primary discursive strategies used to maintain user engagement. The study concludes that artificial intimacy risks atrophying human social resilience and is nothing more than the user talking to themselves with an advanced program to reflect their identity back to them.

Davis 1129
The Evolution of Hemoglobin: From Plants to People
Thomas Bills *◊
Mentor: Justin Rheubert

Hemoglobin is one of the most biologically significant proteins, with evolutionary roots extending from bacterial globins to the oxygen-binding proteins of early vertebrates. While many studies explore either the genetic evolution or structural adaptations of hemoglobin, few integrate both perspectives across the full spectrum of life. This thesis will compile and synthesize current research on the genetic and structural evolution of hemoglobin, focusing on organismal data spanning bacteria, plants, and animals. Emphasis will be placed on gene duplication events and diversification of protein structure. By linking molecular evolution to functional morphology, this review aims to clarify how hemoglobin emerged as the dominant oxygen-binding protein in mammals and other functions it serves in different organisms. The broader significance lies in developing a more comprehensive understanding of globins that may support future therapeutic innovations in human medicine.

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Oral Presentations (Continued)

2:30-2:50 p.m.

CBSL 220
Inspiring Ethical Leadership: Expanding the Reach of the Watterson Center
Eva Hancock, Jared Hill, Monica Crawford, Mara Waire, David Jimenez, and Ja'Ontay O'Bryant
Mentor: Amy Rogan

The Watterson Center for Ethical Leadership was started by Billy and Brenda Watterson and is an initiative to inspire and cultivate ethical leaders who will impact our world. Beginning in the fall of 2026, the center will launch the Watterson Scholars program to promote the center's core values of courage, integrity, compassion, and humility. The goal of this project is to develop a social media campaign to promote these assets throughout campus and beyond. Social Network Sites (SNS) are digital media platforms used by approximately 64% of the population and can provide the most effective way to raise awareness and generate interest in the cause when done strategically. This project uses the GhOST+E method (Goal, Objective, Strategy, Tactics, and Evaluations) to develop a social media campaign to raise awareness of the Watterson Center for Ethical Leadership.

CBSL 221
Impact of Stigma on Human Trafficking Survivors
Mary Argo
Mentor: Robin Walters-Powell

Trauma is a common human experience, yet societal perceptions and stereotypes often influence how individuals interpret and respond to their own experiences. The purpose of this research explores how individuals perceive and experience trauma, particularly in relation to societal expectations and the language used to discuss traumatic events. The study was in collaboration with Sisters in Shelter, an agency in Tiffin, Ohio, that provides support and resources to survivors of human trafficking. Looking through the lens of empowerment and social context, it is hypothesized that stereotypes and societal pressures may affect both individuals' self-perceptions and their willingness to seek help after trauma. This hypothesis is explored through qualitative methods using in-depth, semi-structured interviews with participants, allowing for a detailed examination of personal experiences and perspectives. By identifying common themes and patterns, the study provides insights that can inform trauma-informed practices, reduce stigma, and enhance support systems for individuals impacted by trauma.

CBSL 222
Perceptions of Support and Connection in Substance Use Recovery: A Qualitative Study at Findlay Recovery Center
Devin Davis
Mentor: Robin Walters-Powell

This presentation examined the role of social support and interpersonal connection in fostering resilience among individuals in residential substance use disorder (SUD) treatment. Grounded in resilience theory and trauma-informed social work practice, the project explored how peer relationships, group engagement, and therapeutic connection influenced participants' sense of belonging, motivation, and recovery-oriented identity formation. Using a qualitative design, semi- structured interviews and focus group discussions were conducted with individuals enrolled in a residential level of care. Participants reflected on their experiences of support within treatment programming, including peer interactions, staff relationships, and structured group participation. Data was analyzed thematically to identify patterns related to connection, emotional safety, and resilience development. Findings highlighted that consistent interpersonal support reduced isolation, normalized recovery challenges, and strengthened participants' capacity to engage in treatment. Participants emphasized the importance of shared lived experience, mutual accountability, and feeling valued within the treatment community. Connection was identified not only as a protective factor against relapse risk, but as a core mechanism through which resilience was cultivated. The presentation emphasized implications for social work education and practice, underscoring the need for relationally grounded, resilience-informed approaches in SUD treatment settings. Attendees gained insight into how connection functions as both a clinical intervention and an ethical foundation for recovery-oriented care.

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Oral Presentations (Continued)

CBSL 232
Cracked! An Investigation into Bone Fracture Patterns
Z Skarupa *
Mentor: Todd Beitzel

Forensic anthropology plays a critical role in the justice system by interpreting skeletal injuries to reconstruct violent events. However, scientifically linking specific bone fractures to the exact weapon used remains a challenge, yet it is necessary for admissible court evidence. This ongoing research investigates the fundamental feasibility of this correlation, asking whether weapon types can be positively and reliably identified based solely on fracture patterns. The central hypothesis posits that fracture patterns are replicable under controlled conditions, with specific types—linear, spiral, and comminuted—predictably correlating with variations in weapon type and velocity. To test this, the study utilizes a modified baseball pitching machine to deliver impacts to porcine femurs, selected as a human analog due to comparable cortical bone hardness and ethical considerations. Four weapon profiles were tested—a claw hammer, dowel rod, crowbar, and hatchet—impacting at speeds of 22, 33, and 44 mph. The methodology involves precise measurement of bone dimensions relative to fracture length, width, and type, with future microscopic analysis planned to identify micro-trauma. Expected results anticipate discernible statistical differences in fracture patterns based on the specific combination of speed and weapon. Ultimately, this study aims to provide the necessary proof of concept that weapons leave distinct, reproducible signatures on bone, serving as a foundational step for future forensic interpretation in criminal trials.

Work to be presented at the National Conference on Undergraduate Research (NCUR), April 13-15, 2026, Richmond, VA.

CBSL 237
Interdisciplinary Scientific and Cultural Exploration at Okayama University of Science
Paige Grum *
Mentor: Hiroaki Kawamura

In an era of globalization, many scientific problems require knowledge that traverses international cultural boundaries and solutions that are the collective of scientists from all over the globe. During my month-long science internship at the Okayama University of Science, I explored a broad range of scientific disciplines in order to investigate the relationship between culture and scientific methodology. This experience served the purpose of investigating approaches to science in Japan and networking with fellow researchers on the other side of the globe. Across a multitude of various undergraduate and graduate laboratories, I observed and participated in research on topics such as chicken feather pigmentation, halophytic plant species diversity, and fluorescence microscopy on plant root nuclei. Through these experiences, I was able to connect with fellow undergraduate researchers from Japan and a vast array of countries all over the world. Exposure to a unique and vastly different culture opened my eyes to a new breadth of possibility in the global scientific community. As I am adamant about pursuing a life-long career in global health, this experience was vital to understanding the importance of cross-cultural collaboration in advancing scientific innovation. Despite our differing academic and cultural backgrounds, the shared tenets of scientific methodology served as a unifying foundation in my developing relationships with Japanese undergraduate researchers at Okayama University of Science.

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Oral Presentations (Continued)

Davis 102
Design and Development of a Custom CRM System for the Oiler 10 Marketing Group
Malea Bess *, Israel Ogunmoyero, Adonai Bumba, and Giulian Bodiu
Mentor: Dominic Wilson

The Oiler 10 Marketing Group requires an efficient and centralized system to manage project requests, stakeholder communication, and organizational workflow. In this project, we designed and developed a custom Customer Relationship Management (CRM) system tailored to meet the group's operational needs. The system includes features such as intake forms for new project requests, stakeholder and contact management, communication tracking through emails and follow up notes, and integrated project planning tools. Additionally, the CRM provides a dashboard that highlights upcoming deadlines and active initiatives to improve productivity and transparency. By streamlining communication, organizing project data, and improving workflow coordination, this system aims to enhance collaboration and overall efficiency within the Oiler 10 Marketing Group while providing a scalable solution for future organizational growth.

Davis 181
Determining the Efficiency of Rain Garden Filtration on Road Salt Runoff
Brynn Spicher *◊
Mentor: Lauren Sandhu

Water pollutants can originate from many sources. During frigid winters, road salt serves as a crucial tool for fighting ice and snow. Despite the evident safety advantages, runoff from road salt introduces elevated levels of dissolved sodium chloride into nearby water systems. The increased salinity threatens both water quality and native organisms that inhabit the affected areas. Rain gardens are designed to capture water runoff and filter pollutants before flowing into the main watershed. Assessing the percentage of sodium chloride and chloride concentrations in parts per million (ppm or mg/L) at specific points throughout a rain garden will determine the efficacy of its natural filtration system on the increased sodium chloride levels. Additionally, monitoring these metrics before and after winter storms will allow for the assessment of environmental repercussions over a set period.

Davis 186
Sustainable Helping at Work: The Moderating Role of Perceived Organizational Support in the Relationship Between Organizational Citizenship Behavior and Burnout
Minal Bista
Mentor: Jennifer Theriault

In higher education, non-faculty staff are often the people who keep institutions running by helping students, supporting coworkers, and stepping in wherever they are needed. These extra efforts, known as organizational citizenship behaviors, are typically seen as positive and essential to campus life. However, when helping becomes constant and expected rather than truly voluntary, it may also lead to exhaustion and burnout. This presentation will identify how different types of helping behaviors, those directed toward coworkers and those directed toward the organization, are shown to relate to burnout among non-faculty staff in higher education research. The presentation will also include an overview of the purpose of a dissertation study that will explore whether perceived organization support, or employee's sense that their institution values their work and cares about their well-being, changes how helping affects burnout. The purpose of this study will be to help higher education leaders better recognize invisible labor, set healthier expectations around extra-role work, and build support systems that protect employee well-being while sustaining a collaborative campus culture.

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Oral Presentations (Continued)

Davis 1121
An Investigative Research Project into the Properties and Applications of Biobased Nanomaterials, Based on Computational Modelling
Benjamin Phillip Hall
Mentors: Hafed Bascal and Nathan Tice

nvestigative research into the structures and interactions of bionanomaterials. Through the use of computational modelling, the surface level interactions are able to be explored as well as considering the differences based on the solvents used. To date, research primarily focusses on cellulose and lignin as the primary sources of biomaterial to be used at a nanoscopic scale, but there are large areas of further development, such as starch, a biological polymer, which provides the potential for further areas of development largely due to its ability encapsulate, protect and orally deliver bioactive components. Biomaterials offer unique properties solely based on their nature, and so through this computational analysis, these models will be optimized, and energies calculated and considered, to compare their interactions and how this varies based on the groups present, therefore exploring the potential applications and properties of biobased nanomaterials.

Davis 1129
From Maps to Graphs: Coloring Planar Graphs
Nick Beratz
Mentor: Blake Winter

This presentation addresses the classical question: What is the minimal number of colors needed to color a map such that no two adjacent countries share the same color? Within the framework of discrete mathematics, this problem is modeled using planar graphs and explored through a sequence of increasingly strong graph coloring theorems. The discussion begins with the 6-Color Theorem, which provides the simplest general upper bound for planar graph coloring. Using Euler's formula and the inequality $e \leq 3n-6$, it is shown that every planar graph contains a vertex of degree at most five. This structural lemma enables a direct inductive proof and illustrates the effectiveness of averaging arguments in discrete mathematics. Building on the same structural insight, the presentation then examines the 5-Color Theorem. Although induction still applies, the degree-five case admits no immediately available color, requiring the introduction of Kempe chains. These controlled color- switching arguments exploit planarity to rearrange colors without breaking the coloring rules. Finally, the outline of the 4- Color Theorem is discussed, along with its historical significance as the first major theorem proved using extensive computer- assisted case analysis. Together, these results show how a simple question about coloring maps leads from easy arguments to more advanced ideas and finally to the use of computers.

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Oral Presentations (Continued)

3:00-3:20 p.m.

CBSL 220
Using the Power of Social Media to Extend the Reach of the Watterson Center for Ethical Leadership
Elizabeth Rine, Eli Schroeder, Kelsey Bates, Christion Stokes, David Etzkorn, Jackson Ramer, and Adam Nunes
Mentor: Amy Rogan

The Watterson Center for Ethical Leadership at the University of Findlay serves as a central initiative dedicated to cultivating values-driven leadership within the higher education environment. Our goal is to help promote and expand outreach for the Watterson Scholars Program ahead of its first year in action. We'll achieve this by developing a social media campaign to raise awareness and encourage student engagement with the Watterson Center for Ethical Leadership. We'll be building upon how the center's mission emphasizes the development of courage, compassion, integrity, and humility as essential qualities for responsible decision-making and personal growth. This began because in March 2022, alumni Billy J. and Brenda Watterson donated a significant investment toward the University of Findlay. As part of this initiative, the former College of Business and Student Life building was renamed the Watterson Center, showing the university's grounded commitment to ethical, values-based education. The Center's programming focuses on ethical development through experiences and leadership training. Working within the education aspect, the center provides students and employees with opportunities to develop and practice ethical leadership through learning, service, and structured reflection. The WCEL continues to expand its reach and is currently recruiting students for the Watterson Scholars Program, scheduled to launch in Fall 2026. Overall, this campaign aims to showcase the Watterson Scholars Program as an optimal opportunity for students looking to grow as ethical leaders, while expanding awareness of the Watterson Center's mission across the campus community.

CBSL 221
Exploring the Positive Impacts of Social Support on Self-Reported QoL in Individuals With Chronic Mental Health Disorders
Margaret Kelsey
Mentor: Robin Walters-Powell

Severe mental health disorders, including schizophrenia, bipolar disorder, and major depressive disorder, substantially affect individuals' daily functioning, social relationships, and overall well-being. While traditional clinical approaches often prioritize symptom reduction, growing evidence highlights quality of life (QoL) as a critical, holistic indicator of recovery. QoL encompasses physical health, psychological well-being, social connectedness, and the ability to engage in meaningful daily activities. Research consistently demonstrates that perceived social support plays a central role in improving QoL among individuals with severe mental illness, contributing to better psychological outcomes, enhanced functioning, greater engagement in treatment, and reduced risk of relapse and hospitalization. Supportive relationships may also buffer the effects of stigma, isolation, and chronic stress that frequently undermine recovery. Despite these findings, important gaps remain in the literature. Existing studies largely focus on outpatient or community-dwelling populations and rely heavily on cross-sectional designs, providing limited insight into how QoL and social support evolve during periods of acute instability. Individuals in short-term behavioral-health stabilization or crisis settings remain underrepresented, and lived experiences are often overlooked in favor of narrowly defined clinical outcomes. This study seeks to address these gaps by examining the relationship between perceived social support, daily functioning, and quality of life among individuals with severe mental illness in a behavioral-health stabilization setting. By focusing on this critical and under-studied phase of care, the study aims to advance understanding of recovery as a multidimensional process and to inform person-centered interventions that support long-term stability, social integration, and meaningful quality of life beyond symptom management.

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Oral Presentations (Continued)

CBSL 222
The Role of Structured Support Systems in Enhancing Mental Health Outcomes and Family Resilience
Devin Agosto *
Mentor: Robin Walters-Powell

Mental health conditions such as anxiety, depression, and trauma-related disorders, including post-traumatic stress disorder (PTSD), significantly impair individual well-being and social functioning. These challenges extend beyond the affected individual, creating ripple effects that destabilize families, strain community relationships, and burden social systems. Despite growing recognition of the need for holistic care, many individuals face barriers to recovery and quality of life improvement when community-based or government-supported programs are absent or underfunded. The lack of accessible, structured support systems perpetuates inequities in mental health outcomes and limits opportunities for resilience and social integration.

CBSL 232
The Impact of AI-Generated Summaries on Consumer Online Review Behavior
Samriddhi Limbu
Mentor: Jae Eun Jeong

Online reviews have emerged as an essential source of information for both consumers and marketers. For consumers, online reviews influence decision making, shape satisfaction and loyalty, and impact purchase behavior. With the fast advancement of generative AI, new dynamics have been introduced into this ecosystem. Generative AI have revolutionized content creation, sentiment analysis, and summarization across multiple industries. This study addresses the research question: How does the presence of AI Generated Summary (AIGS) affect the perceived review helpfulness and purchase decision making? What changes in consumer review behavior are observed following the implementation of AI generated summary reviews? This study reviews emerging trends and identifies the key research topics currently being examined in the literature.

CBSL 237
Experiences of Veterinary Medicine and Agriculture in Other Cultural Contexts: Reflections on the 2025 Rakuno Gakuen University Animal Science Study Tour
Marah Hurley and Gabrielle Reck
Mentor: Hiroaki Kawamura

The 2025 study abroad experience at Rakuno Gakuen University in Hokkaido, Japan gave an invaluable opportunity for the presenters to examine how veterinary medicine and agriculture are taught and practiced in a different cultural context. The presenters compared Japanese veterinary training, laboratory techniques, dairy production practices, and animal welfare approaches to those in the United States through hands-on learning. In addition to professional development, the presenters also gained meaningful exposure to Japanese culture and traditions. While at Rakuno Gakuen University, the presenters observed clinical rotations at the Animal Medical Center, following client cases through internal medicine, neurology, and surgical procedures. These experiences highlighted the diagnostic strategies, client communication practices, and imaging techniques being practiced in Japan. Laboratory training included learning about bacteriophage therapy, how it can treat bacterial infections, and its potential to combat current antibiotic resistance. Other learning opportunities included anatomy labs, horticulture practicums, dairy farm experiences, and community-based dog training. This study abroad experience will be valuable for students pursuing animal science or veterinary medicine degrees because modern animal health challenges can require global collaboration. Exposure to Japan's veterinary medicine and agriculture offers unique professional and cultural experiences that may impact students' future career plans. The experience also improved students' adaptability, independent problem-solving abilities, and cross-cultural communication skills. The presenters will reflect upon their experiences of the 2025 Rakuno Gakuen University Animal Science Study Tour.

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Oral Presentations (Continued)

Davis 102
Development of a Campus Bike Rental and Maintenance Management System Software
Fluffy Nguyen, Allison Smith, and Santiago Arteaga Restrepo
Mentor: Dominic Wilson

The UF campus bicycle program provides an affordable and sustainable transportation option for students but relies on informal methods to track inventory, status, and maintenance. This project presents the design and implementation of bike shop management system software to support campus services through structured inventory and workflow management. The system allows the shop to manage unique identifiers for each bicycle and maintain records of intake/outtake dates, availability, repair and maintenance, and other notes. Core functionality is implemented using a CRUD-based architecture integrated with an easy-to-use interface. By centralizing bicycle data, the system improves visibility and efficiency for the administrators. This project demonstrates how a well-scoped management system can address practical campus needs and serves as a clear example of applied software design.

Davis 181
Evaluating the Impacts of Internal and External Hive Conditions on Honey Bee (*Apis mellifera*) Behavior
Ashley Kiger, Summer Brown, Jena Lafon, Kaitlyn Gannon, Elizabeth Lindy, Yuliana Morgado, and Rachel Kelly
Mentor: Lauren Sandhu

This research focuses on monitoring the barometric pressure, temperature and relative humidity inside and outside the beehives in Findlay, Ohio, to better understand how colonies regulate their internal environment under changing environmental conditions. In recent years, bee populations have been declining, which poses a significant concern as honey bees are vital for ecological balance and pollination services. Climate change has intensified the challenges faced by bee colonies. The primary objective of this study is to identify patterns and fluctuations in hive temperature and humidity, evaluate their impact on colony health and behavior, and provide actionable insights for effective hive management. For honey production to be efficient, the hive must maintain an optimal temperature and humidity range to allow bees to work effectively. When hive temperatures drop, worker bees are forced to move to generate heat, which requires a significant amount of energy. To better understand how bees regulate temperature and humidity in their hives, we used Brood Minder sensors, a Bluetooth monitoring device designed to be minimally invasive. Additionally, video recording was conducted at each hive entrance at several points throughout the day for months, to identify key honey bee behaviors and evaluate how they may be affected by external environment factors such as temperature, humidity and barometric pressure. This technology enables real time monitoring without disturbing the bees and can support predictive assessments of key events such as swarming, honey production and colony stress. These findings have the potential to enhance beekeeping strategies and contribute to pollinator conservation efforts.

Davis 186
The Power of a Pre-Professional Portfolio in Teacher Education
Brooke Pettus
Mentor: Carrie Wysocki

This presentation explores how a structured pre-professional portfolio can help teacher candidates show they are ready for the profession and better prepare for future employment. The project focused on creating an EDUC 202 and EDUC 302 portfolio aligned with Ohio Teacher Evaluation System (OTES) expectations, including artifacts and clear explanations that connected planning, instruction, assessment, classroom climate, collaboration, and professional growth. Through the process, I learned that a portfolio is more than a collection of assignments - it is a reflective tool that helps future teachers explain the reasoning behind their instructional choices, connect lessons to standards, differentiate for student needs, and use data to guide instruction. Gathering evidence such as lesson plans, assessments, feedback, and reflections also highlighted growth over time and the importance of intentional planning. This work is valuable in teacher education because it helps candidates show their skills beyond a single observation, while serving as both a professional showcase for interviews and a practical roadmap for ongoing development and readiness for the teaching profession.

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Oral Presentations (Continued)

Davis 1121
The Structural Integrity of C60 Under Internal Helium Pressure
Ethan Lantz * and Eugene McCall *
Mentor: Hafed Bascal

Buckminsterfullerene (C60) is a molecule resembling a robust, hollow carbon cage, which enables the encapsulation of other molecules or small atoms. This process forms endohedral complexes with intriguing electronic and structural properties. We investigate the energetic stability and maximum encapsulation capacity of helium atoms within the cage using density functional theory (DFT) calculations performed in Gaussian. A systematic series of geometry optimizations and single-point energy calculations was conducted for C60 and for endohedral complexes containing sequentially increasing numbers of helium atoms (n=1-5), allowing direct comparison of total energies, electronic structures, and cage stability as a function of helium insertion. Relative stabilization energies were evaluated to determine the thermodynamic favorability of helium encapsulation, while structural distortions and bond strain metrics were monitored to identify the onset of cage rupture and destabilization. Additionally, molecular orbital analysis (HOMO-LUMO energies and gaps) was employed to assess how helium capacity influences Buckminsterfullerene's electronic properties and framework. Preliminary results are expected to demonstrate that the encapsulation of a single helium atom yields the most stable configuration, consistent with minimal perturbation of the C60 cage and optimized dispersion interactions. As additional helium atoms are introduced, increasing internal pressure and electronic repulsion are anticipated to destabilize the cage, defining a clear upper limit to helium encapsulation prior to structure failure. This work provides computational insight into noble gas confinement in fullerenes and contributes to a broader understanding of molecular encapsulation, pressure-induced instability, and interaction within carbon nanostructures.

Davis 1129
Euclid's Lemma Escape Room
Alyvia Lindeman
Mentor: Blake Winter

The purpose of this presentation is to introduce and explore a fundamental result in number theory known as Euclid's Lemma, which states that if a prime number divides the product of two integers, then it must divide at least one of those integers. The presentation begins with a concise overview and explanation of the lemma and its significance. Following this, participants will engage in an interactive escape room–style activity designed around Euclid's Lemma. Audience members will work through a series of mathematical clues that require applying the lemma to factor integers, analyze divisibility, and ultimately solve a code to "escape" the room. Through creating and presenting this activity, I developed a deeper understanding of Euclid's Lemma beyond its formal definition, particularly how it serves as a foundation for prime factorization and more advanced results such as the Fundamental Theorem of Arithmetic. This learning is valuable to the field of mathematics because Euclid's Lemma plays a critical role in number theory, abstract algebra, and mathematical proof, and the interactive format demonstrates how abstract concepts can be taught in an engaging, problem- solving–based way.

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A Showcasing of Recent Innovations to the Campus Hoop House

Hoop House - Located behind the Sustainability House at 138 W. Foulke Ave.
Ava Vadala, Isabella Dalton, Citalee Higgins, and Carson Altman
Mentor: Lauren Sandhu and Brandan Gray

A Bountiful Harvest: Cultivating Innovation in the Campus Hoop House In 2022, the University of Findlay's campus hoop house was brought back to life. A wide variety of cultivars have been trialed, and hundreds of pounds of produce have been donated to a local food bank. In 2025, demonstration plots were established in the newly re-opened Hancock County Community Garden, and hoop house expansion continued. In 2026, students will work to increase production, install a drip irrigation system, expand crop diversity, improve local access to fresh produce, and explore innovative techniques to enhance sustainability principles. This project aims to improve the UF ecologically-conscious agricultural teaching garden and develop a system which focuses on maximizing yield while maintaining sustainable agriculture practices, such as integrated pest management and companion plantings.

2026 Student Art and Design Exhibition

Lea Gallery, Virginia B. Gardner Fine Arts Pavilion

2026 Student Art and Design Exhibition
Mentor: Valerie Escobedo

Each year, the University of Findlay celebrates undergraduate students in the visual arts by presenting a Student Art and Design Exhibition. This is a juried exhibition that features work of students from a variety of majors across campus. There are nine different categories for media, and an awards judge selects the top work in each category for recognition at the exhibition reception and awards ceremony. Several students who have been selected for the show will be present in the Lea Gallery to answer questions and talk about the work they have on exhibit.

Poster Presentations

Poster: 1
Comparison of A Soccer Ball's Impact on a Stationary vs. Moving Head
Sofia Cetrone * and Mariana Stojcevski *
Mentor: Guofen Yu

Whenever a soccer athlete heads a ball, the force applied to the head depends on how the head moves at the point of collision. This project employs a force plate to record the forces, contact duration, and impulses when a ball travels toward the force plate which is at rest (representing a stationary head) and a plate advancing toward the ball (representing moving head), respectively. The forces on a stationary head and on a moving head are evaluated. The findings of this study may offer some insight into safer heading strategies and clarify how variations in contact duration affect force during soccer ball impacts.

Poster: 2
Effect of Breeding Time Following Estrous Synchronization on Reproductive Performance in Crossbred Ewes
Hannah DeMattio *◊ and Madelyn Laskowski *◊
Mentor: Victor Flores

The use of hormones to synchronize estrous in sheep has been widely investigated and shown to improve reproductive efficiency and facilitate predictable breeding schedules by shortening the breeding period and improving overall reproductive performance. Typically, ewes are joined with fertile rams immediately following estrous synchronization; however, fertility during a hormone-induced estrus may differ from a naturally occurring estrus. The objective of this study was to explore reproductive outcomes, including conception rates, lamb crop (%), and lamb percentage, in crossbred ewes bred at the first estrus following synchronization compared with ewes bred at the second estrus (delayed breeding). This study aims to provide information for breeding management practices that optimizes reproductive efficiency in sheep. A total of 42 crossbred ewes underwent estrus synchronization and were randomly placed into four groups, two non-delayed (NDL; n=11 or n=10) and two delayed (DL; n=11 or n=10). Non-delayed ewes were introduced to fertile rams immediately following synchronization, while delayed ewes were introduced 14 d post-synchronization. Ewes were monitored for mounting via crayon markings and lambing parameters were evaluated using an independent t-test. Estrus detection rates were similar between DL (81%) and NDL (86%) groups. No significant differences were observed in lamb crop (DL: 159%, NDL: 144%, P = 0.18) or lambing percentage (DL: 133%, NDL: 137%, P = 0.46). In conclusion, satisfactory reproductive performance was achieved regardless of breeding time, with a minor numerical increase in lamb crop (%) observed in the delayed (DL) ewes.

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Poster Presentations (Continued)

Poster: 3
The Influence of Caretakers' Communication on Children in Fast-Food Settings
Kyan Young * and Hannah Houser *
Mentor: Allison Kiefner-Burmeister

This study aims to explore how adult communication influences children's choices when ordering fast food. Specifically, it focuses on the types of communication used between adults and children and how these interactions affect children's selection of healthy versus unhealthy options. By observing these interactions between adults and children in natural fast- food settings, we can learn how parents encourage or discourage healthier food options and the effect of their communication on the children's decisions. If evidence suggests that adult communication positively influences children's food choices, this knowledge may be useful in designing future interventions for adults and children who are struggling with the "healthy" fast food options. Throughout this observational study, the researchers have learned how parental pressures and communication styles play a role in shaping children's relationships with healthy and unhealthy foods. Additionally, this research contributes to a broader understanding of how communication between caregivers and children shapes children's food-related decision-making. Findings from this study may also inform caregivers and researchers about effective communication strategies that support healthier choices in fast-food settings. The study also involved systematic observational notetaking and coding methods appropriate for fieldwork. Other studies have dived into how caregivers communicate with children and their healthy balances, but they have not focused on the fast-food aspect (Eli et al., 2016). Due to fast-food restaurants recently evolving, there is limited knowledge about the relationship between caregivers and children and how they communicate. This study helps shed light on these evolving relationships and communication patterns.

Poster: 4
Athletics, Self-Esteem, and Eating Attitudes in College Students
Mackenzie Bacher and Jess Kancler
Mentor: Allison Keifner-Burmeister

Participation in athletics has been shown to influence a person's psychological well-being, self-esteem, and body image however, findings from previous studies are mixed (Mancine et al., 2020). This study represents one component of a larger study and aims to examine the differences between athletes and non-athletes in their emotional well-being, eating behaviors, and self-esteem to understand how athletic participation relates to their body image and eating attitudes. Ninety undergraduate students from a private university participated in this study (44 NCAA female athletes from basketball and soccer teams and 46 non athlete students). Participants completed questionnaires which were composed of the Rosenberg Self-Esteem Scale (Rosenburg, 1965), Positive and Negative Affect Schedule (Watson et al., 1988), Eating Habits Questionnaire (Gleaves et al., 2013), and the Eating Attitudes Test (Garner et al., 1982). These scales assessed a person's emotional affect, attitudes towards food and dieting, self-esteem, and eating behaviors. Results showed that, overall, athletes demonstrated better psychological health pertaining to food, lower negative effect, and fewer bulimia symptoms compared to non-athletes. There were no significant differences between these two groups in attitudes toward dieting or food control. Body mass index was negatively correlated with self-confidence, but it was unrelated to self-liking. These findings demonstrate that athletic participation may relate to healthier eating and emotional outcomes. Understanding these relationships is important for athletes, parents, and coaches because this research shows the need to support healthy eating behaviors and positive body image while also acknowledging the psychological demands that are put on collegiate athletes.

Work to be presented at the Midwestern Psychological Association Conference, April 16, 2026, Chicago, IL.

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Poster Presentations (Continued)

Poster: 5
An Investigation of a Conditioned Place Aversion in the Rough Woodlouse (*Porcellio scaber*)
Leah Daulton *, Anne Braig *, Adisyn Hall , Abigail Mozina *, Jessica Noeller *, and Malea Bess *
Mentor: Vincent 'Gino' Coppola

While woodlice have served as valuable models in ecotoxicological, physiological, and ecological research, their capacity for basic associative learning has received comparatively little attention. Thus, the current study assessed thirty woodlice (*Porcellio scaber*) on a test of conditioned place aversion, a form of associative learning in which an organism learns to avoid locations previously paired with an aversive (displeasing) stimulus. Using a within-subjects design and a two-sided choice chamber (black vs. white walls), woodlice were trained to associate wall color with an aversive odor. Two-percent ammonia served as the aversive odor because woodlice excrete nitrogenous waste primarily in the form of ammonia, making elevated atmospheric concentrations potentially physiologically stressful. Immediately following association training, woodlice were allowed to explore an identical choice chamber without ammonia and the percent of time spent in each half was recorded. All woodlice also completed water-control trials, for a total of four trials: ammonia-black, ammonia-white, water-black, and water-white. It was hypothesized that the woodlice would spend less time in the ammonia-paired side of the chamber; however, analyses revealed no significant side preference in any of the conditions. Although not statistically significant, a trend suggested a mild attraction to the ammonia-associated side, which may reflect a tendency to seek conspecific-associated cues or aggregation sites rather than avoidance of the previously conditioned environment.

Work presented at the Animal Behavior Conference, March 27-28, 2026, Bloomington, IN. To be presented at the Animal Behavior Society, July 14-18,2026, Cincinnati, Ohio.

Poster: 6
General-Purpose Solution for tracking an Investigation of Conditioned Place Aversion in the Rough Wood Lice (*Porcellio scaber*)
Malea Bess *, Leah Daulton *, and Adisyn Hall
Mentors: Laura Leventhal and Vincent 'Gino' Coppola

Behavioral tracking of terrestrial isopods, such as Porcellio scaber, is important for ecological, environmental, and behavioral research; however, many existing tracking tools are costly, inflexible, or difficult to adapt for general use. This project aims to develop a general-purpose software solution that enables efficient, automated tracking of wood lice movement from standard video recordings. The software processes recorded video footage to identify individual organisms and extract their two-dimensional spatial positions as x- and y-coordinate data over time. Using these coordinates, the system computes quantitative behavioral metrics including time spent in predefined regions of interest, speed, acceleration, total distance traveled, and movement trajectories. The software is designed to be adaptable to different experimental setups, lighting conditions, and camera configurations while requiring minimal user intervention. It is expected that the software will process video recordings to track P. scaber individuals and generate quantitative movement data suitable for statistical analysis. Predicted results include reduced observer bias, increased efficiency compared to manual tracking methods, and improved reproducibility across experiments. Overall, this project provides a flexible and accessible tool for studying wood lice behavior, serving as a foundation for broader applications in invertebrate tracking and behavioral analysis research.

* This presenter is an Honors Program student.
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Poster Presentations (Continued)

Poster: 7
Histological Assessment of Amyloid-beta Aggregation in Old Pigeons
Danica Henderson, Justin Reed, and Lucy Snoke
Mentor: Vincent 'Gino' Coppola

Abnormal aggregation of amyloid beta (Aβ) proteins, known as Aβ plaques, is a primary neuropathological feature of Alzheimer's disease. Given that Aβ plaques contribute to wide-spread neurodegeneration and cognitive decline, these plaques have been the focus of much scientific research. However, such research has primarily focused on mammalian models, with only two known studies identifying Aβ accumulation in birds. Specifically, one study reported Aβ plaques in a single great spotted woodpecker (Dendrocopos major) that had died in a zoo, while the other study found Aβ plaques to correlate with pesticide liver levels in wild sparrow hawks (*Accipiter nisus*). In recent years, however, pigeons (*Columba livia*) have emerged as the primary model for neurocognitive aging research in birds. Thus, the current study sets out to systematically assess whether Aβ plaques are present in aged pigeons. Slices of brain tissue from 5 young (all 2 years) and 5 old (17-20 years, M = 18.20, SD = 1.30) will be stained with Congo red, a histological stain commonly used to identify Aβ plaques. It is expected that older homing pigeons will exhibit more Aβ-positive staining relative to younger pigeons, particularly in the hippocampus and the nidopallium caudolaterale (the avian equivalent of the mammalian prefrontal cortex), areas that typically see significant Aβ accumulation in Alzheimer's disease. The current study aims to be among the first to assess pathological aging in pigeons, promoting their use as comparative models for investigating the underlying mechanisms of abnormal neural aging.

Poster: 8
Training Programs on Dynamic Knee Valgus in Female Athletes: A Critically Reviewed Topic
Courtney Morrow
Mentor: Bart Welte

Anterior cruciate ligament (ACL) injury risk is elevated in female athletes who preform repeated high impact landings, with dynamic knee valgus, excessive inward rotation of the tibia and outward rotation of the femur. Female athletes sustain noncontact ACL injuries at rates two to eight times higher than males and their recovery after ACL reconstruction typically requires 9-12 months. Athletes repeatedly exposed to frontal and transverse plane loading may predispose them to noncontact ACL injuries. The aim of this review was to determine what programs can reduce dynamic knee valgus and improve frontal and transverse plane knee control. After thorough analysis, neuromuscular training programs incorporating lower-extremity and trunk strengthening, plyometric technique instruction, balance and proprioceptive training, and movement retraining consistently improved landing mechanics, reduced knee valgus angles, and enhanced multiplanar knee control. Training interventions can effectively modify high-risk frontal and transverse plane movement patterns in sport-specific populations. This work is valuable to the field because ACL injury prevention can save millions in healthcare costs and missed seasons of play. Programs emphasizing proper landing techniques, trunk positioning, and lower-extremity alignment demonstrated the most consistent improvements in high-risk movement patterns. The implementation of evidence-based neuromuscular training programs to reduce ACL injury risk can be used by exercise professionals and coaches and improve long-term knee health and sport participation.

Poster: 9
The History and Understanding of Smallpox
Gavin Montgomery
Mentor: Kim Lichtveld

The presentation will discuss the ailment of Smallpox throughout history up to the modern day. The presentation is to include brief history on the affects of smallpox during earlier stages of human history, common symptoms with the disease, and who is most likely to contract smallpox. The presentation is to also cover some of the potential effective or ineffective remedies for smallpox, and the eventual cure for the disease. The presentation may also include potential well- known outbreaks that have occurred across the world.

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Poster Presentations (Continued)

Poster: 10
Medication Errors Among New Graduate Nurses
Mackenzie Sapp, Katelinn Dellinger, and Brianna Factor
Mentor: Jessica Ellerbrock

Medication errors are a significant patient safety concern, especially for new graduate nurses. The purpose of this presentation is to research factors that contribute to medication errors and ways to reduce common errors. It also helps increase awareness and encourage mindfulness related to medication administration. This project is aimed at answering the following questions: What are the most common reasons for medication error among new graduate nurses? What types of medication errors are most frequently reported? What medications or medication delivery methods are most commonly involved in these errors? The project also focuses on the challenges that new nurses face including heavy workloads, time pressure, high stress, frequent interruptions, and limited experiences. All of these factors correlate with medication errors. The research shows that many errors are often related to system level issues, rather than lack of knowledge. Understanding this data is important for new nurses because it reinforces the importance of slowing down, asking questions, and seeking help when you need it. Increasing awareness of common errors and risk factors can help new nurses be more cautious. It is important to create a positive work environment where new nurses feel comfortable asking questions and speaking up when they need help. This information is valuable to the nursing profession because it helps bring awareness to a growing workforce.

Poster: 11
Determination of Drug-Drug Interactions Between Opioids and
Anti-Retroviral Agents in HIV-Infected Cells
Eden Nygaard and Sydney Wissler
Mentor: Shantanu Rao

Fentanyl is a potent opioid that happens to be a substrate for the hepatic enzyme CYP3A4. Nelfinavir is a protease inhibitor indicated for the treatment of Human Immunodeficiency Virus (HIV) and is classified as a CYP3A4 inhibitor. Some reports have suggested that opioids such as fentanyl can increase HIV replication. Concomitant administration of nelfinavir and fentanyl, therefore, may lead to potential drug-drug interactions (DDI). The purpose of this research is to set a precedent for other potential drug interactions between opioids and nelfinavir. We hypothesized that CYP3A4-based DDI would result in enhanced replication of HIV in target human cells. Utilizing an HIV P24 ELISA, we quantified the replication of HIV under varying concentrations of fentanyl and/or nelfinavir in chronically infected promonocytic cell line U1. The monocyte-derived macrophages from U1 cells were treated for 48 hours with 100 nM-1μM of fentanyl, nelfinavir, or a combination of both agents. Compared to baseline HIV replication (100%; n=3), Fentanyl 100nM interestingly increased HIV replication by about 29%, while nelfinavir 100 nM expectedly reduced HIV replication by around 17%. Interestingly, in the presence of fentanyl, nelfinavir was unable to exhibit any antiretroviral effect. The preliminary analysis of our results, hence, indicates that DDI between opioids and antiretroviral drugs can have a negative impact on HIV progression. In future studies, we would like to expand our studies to further examine the cellular mechanisms responsible for the observed DDI.

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Poster Presentations (Continued)

Poster: 12
Design and Optical Alignment of a Modular Raman Spectroscopy System (MRSS)
Caitlin Allen
Mentor: Tehseen Adel

Raman spectroscopy is a spectroscopic technique that involves illuminating a material with light of a specific wavelength and measuring the scattered light after it interacts with the material. The scattered light produces a spectral wavelength shift that is characteristic of the material's molecular structure and environment, often unique to the material. Here, we present a custom-built Modular Raman Spectroscopy System (MRSS) that utilizes a 633 nm excitation laser source, optical components for directing and filtering light, and a spectrometer for detecting the scatter light. Current efforts are focused on constructing and aligning the laser based optical pathway, optimizing signal collection, and minimizing background noise. Preliminary measurements will involve validation of the MRSS and selection of calibration materials. This work contributes to the development of accessible spectroscopic methods for microplastic identification and environmental monitoring in aqueous environments.

Poster: 13
Caregiver Engagement and Children's Behavioral Responses in Kiosk-Based Fast-Food Ordering
Hannah Houser * and Mackenzie Bacher
Mentor: Allison Kiefner-Burmeister

With the implementation of kiosks in restaurants, children are given increased opportunities to control their fast-food orders and food choices. This study aims to address the following question: Do children whose caregivers' model healthy eating behaviors make healthier food choices than children whose caregivers' model less healthy behaviors? This question is explored within the context of ordering fast food using a kiosk. The study employs an observational method in which researchers observed children and their caregiver ordering food from a kiosk. Researchers noted reactions to conversations, body language, levels of engagement, and the sequence of events. Past data suggests that while caregivers' suggestions and behaviors do influence children's food choices, they have an even greater impact on children's overall behavior (Johannsen et al., 2006). When caregivers engaged positively with their children, the children reciprocated and were more receptive to suggestions regarding their meals. When caregivers allowed children to place their own orders, the children appeared more satisfied with their selections and were more willing to make healthier choices, such as adding apple slices to a Happy Meal, when encouraged by their caregivers. Children also seemed to enjoy their meals more when caregivers were attentive to their needs and engaged with them during the meal. Because kiosks are a relatively recent addition to restaurants, limited research exists on how they affect food choices, particularly among children who are given greater autonomy in ordering. This observational study provides insight into how caregivers influence children's eating behaviors and food choices in this evolving context.

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Poster Presentations (Continued)

Poster: 14
Body Image and Anxiety Differences Between Athletes and Non-Athletes
Jessica Kancler, Mackenzie Bacher, and Kyan Young *
Mentor: Allison Kiefner-Burmeister

Participation in sports can influence how individuals perceive their bodies (Hausenblas & Symons Downs, 2001). Despite non-athletes not facing the same pressures as athletes, they are still affected by cultural body image expectations. Being able to understand how athletic involvement relates to body image and trait anxiety could be crucial to promoting the mental health of college students. As a part of a larger study, this research examined differences between athletes and non-athletes in body image (Cooper et al., 1987), trait anxiety (Spielberger et al., 1983), and appearance related pressures from family, peers, and media (Schaefer et al., 2015). Participants included 90 college students ranging in age from 18-23 (M = 19.89, SD = 1.14) from a private college in Ohio. This sample includes 44 NCAA athletes and 46 non- athletes. Participants were predominately female. The study was completed fully in person. Results indicated that athletics participation was associated with better overall body image and lower trait anxiety. In addition, athletes also reported less appearance-related pressure from peers and media compared to non-athletes. Results did not indicate any group difference for family pressure or muscular/thin body internalization. These findings suggest that participation in collegiate athletics may support psychological well-being, or that individuals with better well-being may be more likely to engage in sports.

Work to be presented at the Midwestern Psychological Association Conference, April 16, 2026, Chicago, IL.

Poster: 15
Addressing the Negative Impacts of Behavioral Problems in Companion Animals on Owner Well-Being
Adisyn Hall *
Mentor: Vincent 'Gino' Coppola

Behavioral problems are among the most frequently cited reasons for companion animal relinquishment. Review of existing literature demonstrates a clear association between companion animal behavioral problems, increased caregiver burden, and diminished owner well-being, including heightened risks of depression, anxiety, and suicidal ideation among owners with pre-existing mental illness. Similarly, owners without diagnosed mental illness reported increased anger, stress, anxiety, or embarrassment, which negatively affect overall life satisfaction. Furthermore, owners managing animals with behavioral concerns, whether normal or abnormal, often feel they lack adequate support or education to effectively address these issues. Therefore, the purpose of this project was to develop an educational resource – a poster – that could be displayed in a veterinary clinic. The content of the poster acknowledges the negative impact of pet behavioral challenges and provides validation and normalization of owner experiences. Additionally, the poster directs owners to appropriate veterinary and emotional support resources. Given that the benefits of pet ownership generally outweigh associated challenges, increased access to educational resources and veterinary-supported guidance is warranted to improve owner well-being, encourage early behavioral intervention, and reduce the risk of companion animal relinquishment.

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Poster Presentations (Continued)

Poster: 16
Consent Forms: What Improves Reading Completion
Rachel Valois and Troie Grubbs
Mentor: Jacob Burmeister

Consent documents are a ubiquitous and often annoying part of life. Current literature suggests that most participants spend an average time of 35.4 seconds on consent documents, which is an insufficient time to read and understand the forms (Parfenova et al., 2024). Studies have suggested that participants are more likely to read the first two sections of a consent form (procedure and risks) than later sections (Douglas et al., 2021). The purpose of this study is to identify ways that would make reading consent forms engaging to participants to increase comprehension and recall. In a 2x2 experiment design, participants will be given a consent form that is either short or long, and the researcher will either be present or absent while the participant reads the form. The dependent variable is whether participants read the full consent document or not. There will be answers to questions throughout the form, which will be asked at the end of the experiment, a distraction task, and an observation task to obtain participants' reactions to a task. Finally, participants will be asked three recall questions to test their recall of items in the document. Engagement will be determined by whether the participants' answers to the questions are correct and their reactions to the observation task. The data will be analyzed through the Statistical Package or the Social Sciences (SPSS). Twi T-Tests and one ANOVA will be used for each of the two outcomes to compare the participants' data between the conditions.

Work to be presented at the Midwestern Psychological Association Conference, April 16, 2026, Chicago Illinois.

Poster: 17
The Perfection Trap: Stress and Anxiety Unraveled
Justin Reed
Mentor: Jessica LaBuda

Previous research has linked perfectionism, perceived stress, and negative mental health outcomes in undergraduates. In addition, research has linked maladaptive and self-critical forms of perfectionism to higher levels of anxiety and depression (Liu et al., 2022; Suh et al., 2023). This study tested whether perceived stress moderates the relationship between perfectionism and anxiety in college students. Fifty-one undergraduates from a Midwestern college self-reported measures of perfectionism, perceived stress, and anxiety. A multiple regression model tested the main effects of perfectionism and perceived stress, as well as their interaction. Results indicated perfectionism was a significant positive predictor of anxiety; however, perceived stress and the stress-perfectionism interaction were not significant. These findings indicate that trait perfectionism predicts anxiety independent of stress. Showing how targeted interventions focused on maladaptive perfectionism may help reduce anxiety among college students.

Work to be presented at the Midwestern Psychological Association Conference, April 16 - 19, 2026, Chicago Illinois.

Poster: 18
Contemporary Deworming Practices in the Equine Industry
Megan Seidel *◊
Mentor: Natalie Simmons

Parasite resistance is becoming increasingly common in horses, and since there is limited knowledge of novel anthelmintic products in production, it is essential to examine current deworming practices to determine the best way to extend the effectiveness of the current deworming products available. This study aimed to answer the questions of what deworming practices individuals within the equine industry are using, and why they are using those particular practices. To answer these questions, a survey was administered to horse owners and caretakers that asked questions regarding deworming products, practices, reasons behind their practices, and their knowledge of parasite resistance. Results showed varied experience, knowledge, products and diagnostics used, and reasons for the chosen practices across respondents. Despite these differences, the majority of respondents indicated that they believe parasite resistance is a concern for the equine industry. Respondents also expressed their desire for more research, veterinary guidance, and more affordable diagnostic tools, as well as an overall belief that better education about parasite resistance is needed.

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Poster Presentations (Continued)

Poster: 19
Extraction of Touch DNA On Various Textiles
Citalee Higgins
Mentor: Christopher White

There is much debate regarding the exact concentrations of endogenous and exogenous nucleated cells, fragment-associated residual DNA, anucleate corneocytes, and cell free DNA (cfDNA) present in touch DNA. Anucleate corneocytes are nonpolar, nucleated cells that have a nonpolar exterior, and residual DNA and cfDNA are polar; the concentration of these molecules in touch DNA determines its polarity, which influences its interactions with surfaces. A common surface that contains touch DNA at crime scenes are textiles. Unfortunately, there is a lack of knowledge regarding the influence that textile type has on touch DNA extraction. It stands to reason that if more touch DNA were to be extracted from fabrics of a particular polarity, then the main organic compounds present in touch DNA could be identified. This can help crime scene investigators by establishing which fabrics are likely to contain touch DNA, as well as other surface types, based upon their polarity. This will create a streamlined workflow from crime scene collection to laboratory analysis. This study involved the collection of ten different fabric types and the extraction of a single person's DNA from these textiles. Two textiles were nonpolar, four were polar, and the last four had intermediate polarity. The results of this study indicate that a larger sample size should be used to represent the general population. This is because people have varying levels of oils, shed skin, and nucleated cells present on their skin. Samples from at least thirty people should be collected if this study were to be replicated.

Poster: 20
Quantifying Arboreal Small Mammal Species in Temperate Forest Canopies
Chloe Morgan *◊, Molly Hohmann *◊, and Keira King *◊
Mentor: Benjamin Dolan

This research addresses how small mammals use forest canopies within temperate forests, specifically examining the use of *Acer saccharum* (sugar maple) and *Quercus rubra* (northern red oak). Regularly observed small mammals have included *Glaucomys volans* (southern flying squirrel), *Sciurus niger* (fox squirrel), and *Peromyscus maniculatus* (deer mouse). We aim to quantify the abundance and compare the diversity of these taxa in two tree species. To obtain this information, trail cameras were strategically placed at three generalized canopy heights on selected *Quercus rubra* (mast-producing) and *Acer saccharum* (non-mast-producing) trees at the same site. Across all seasons, trail cameras captured images by motion and IR activation. These photographs were first processed using Wildlife Insight AI and then reviewed by researchers to ensure accurate identification of species. This dataset is used to evaluate species and will help understand ecological interactions between mammals and tree species within temperate forests, expanding the arboreal habitat dynamics.

Poster: 21
Grand Theft Auto: A Subcellular Tour of *Desmognathus fuscus* Digits
Abigail Noss *◊ and Gracelyn Heider *◊
Mentor: Justin Rheubert

Previous research has explored the epithelial tissues along with the glandular tissues of salamanders with much of the work focused on specialized glands in the head and tail. These studies have shown that there are three distinct glands throughout that are widespread in the epithelium of salamanders with more specialized glands in specific regions. The widespread glands include: granular, mucous, and mixed. Despite these observations, to date, no description regarding the histology of digits has been made. Using histological techniques with differential staining we studied that histology of the hand and digits in Desmognathus fuscus. The three types of previously described glands were identified but distribution throughout the metacarpal and phalangeal region was not uniform. Glands were visible in the metacarpals, proximal phalanx, and middle phalanx, proximal but absent throughout the distal phalanx. Additionally, glands were concentrated on the dorsal surface of the integument and largely absent on the ventral surface. These data are preliminary and will be used in comparison with 3 other species in the family Plethodontidae.

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Poster Presentations (Continued)

Poster: 22
Synthesis and Characterization of Tetrakis(picolinato)tungsten(IV) Complexes
Adeline Kendle *
Mentor: Maryam Yousif

When in its deprotonated form, picolinic acid (pic-) and its derivatives act as N-, O-ligand; thus, it is bidentate, indicating that picolinic acid binds via two donor sites. It has been reported in the literature that picolinic acid complexes have a wide range of biological, chemical, and environmental applications, including use in pharmaceuticals, therapeutic drugs for cancer patients, health supplements, water treatment, and as catalysts. Current research has primarily focused on first-row transition metal complexes with picolinic acid; however, there is limited literature on 4d and 5d picolinate complexes. Our present work aims to synthesize and characterize pure and stable 4d and 5d metal picolinate complexes. After characterization by ^{1}H NMR, UV–visible spectroscopy, and elemental analysis, the goal of this study is to determine how variations in substituents on the picolinate ligand influence the electronic and photophysical properties of these coordination complexes.

Poster: 23
Influence of Moment Arm Length on Bicep Force Production
Angel Sterrett and Aaliyah Better
Mentor: Guofen Yu

This project is to investigate the relationship between the curl angle of the elbow and the force that is applied by the bicep muscle. The bicep is a part of the forearm which is classified as a functioning third-class lever. In order for the arm muscle to hold at a steady position, the torque from the muscle must balance the torque caused by gravity acting on the forearm and the load. A human arm model is used in this project. The weight placed on the hand represents the resistance. Forces applied by the bicep are measured at various elbow angles. The relationship between bicep forces and elbow angles is to be presented.

Poster: 24
Unequal Justice? A Meta-Analysis of Sentencing Disparities
Charlese Yates *◊ and Katherine Hynes *◊
Mentor: Jacob Burmeister

The nature of unequal justice faced by Black and Hispanic Americans at various stages in the criminal justice process is a complex problem often approached with methodologies and theories which are too simplistic (Spohn, 2013, p. 166). Although the extent of these sentencing disparities is unclear, there is a substantial amount of published data on this topic. The most recent meta-analysis, conducted by Mitchell (2005), is over 20 years old and leaves a significant gap in the literature, as numerous studies have been published since then. This proposed study will use a meta-analytic approach based on the previous analysis conducted by Mitchell (2005). Studies will be collected through key word searches in academic databases, reviews of reference lists, and published government data. Each study will be evaluated against specific eligibility criteria to determine its inclusion in the analysis. For each eligible study, relevant data will be coded, including sample characteristics, jurisdictional context, methodological features (e.g., sample size, type of sentencing outcome, inclusion of control variables), and measures of disparity. These effect sizes will be weighted and combined to produce an overall estimate of potential racial disparity in sentencing outcomes. The final sample size of this meta- analysis will be determined by the number of studies meeting the inclusion criteria and identified through the procedures described above. Therefore, the primary goal of this study is to compile and analyze the new data to reveal the overall trends in sentencing outcomes based on race.

Work to be presented at the Midwestern Psychological Association Conference, April 16, 2026, Chicago, IL.

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Poster Presentations (Continued)

Poster: 25
Supporting Successful Aging in Place: The Role of Technology
Mackenzie Alspaugh and Avery Kasian
Mentor: Andrea Sensel

Successful aging in place emphasizes older adults' ability to maintain safety, independence, and quality of life while remaining in their own homes. Achieving this goal requires environments that support both physical safety and autonomy. However, the United States lags behind other countries in integrating advanced aging-in-place technologies within the home. Findings indicated that unfamiliarity with technology often leads to avoidance, which can limit the potential benefits of smart home innovations and wearable devices. If left unaddressed, these barriers can reduce technology's effectiveness in supporting aging in place. This highlights the need to address older adults' concerns through inclusive and accessible design, provide education and training to build technology confidence, and ensure technology remains useful and relevant for the populations it intends to serve. This exploratory qualitative study examined the perceptions, attitudes, and confidence of community-dwelling older adults toward technology use for successful aging in place. Semi-structured interviews were conducted to explore how older adults engage in meaningful daily occupations, adopt innovative technologies, and maintain independence in their homes. Outcomes indicated several barriers to technology use, including limited understanding of how it can be integrated into the home to promote safety and support successful aging in place. Additionally, confidence levels and lack of family support or familiarity strongly influenced engagement. Findings suggest that supporting aging in place requires addressing environmental modifications, technology education, and adaptive strategies to enhance independence and quality of life for older adults living at home.

Work to be presented at the Ohio Association of Gerontology and Education (OAGE) Conference, April 16-17, 2026, Columbus, OH.

Poster: 26
Effects of Road Salt on Macroinvertebrate Communities in the Blanchard River Watershed
Alexandra Arnholt, Samantha Klug, Audrey Buskirk, and Gabrielle Reck
Mentor: Lauren Sandhu

The species richness of macroinvertebrate communities within a water system is a variable which can be utilized to assess water quality. Macroinvertebrate communities are impacted by pollutants, such as excess sediment and nutrients, found in waterways in Northwest Ohio. Water quality parameters such as pH, dissolved oxygen, and total dissolved solids, such as sodium chloride, can be measured to evaluate waterway health, in addition to surveying the macroinvertebrate community. Sodium chloride from road salt has recently been acknowledged as a major water pollutant. During frigid winters, road salt serves as a crucial tool for fighting ice and snow. When added to ice, road salt reduces the freezing point of water, allowing the ice to melt even in sub-zero temperatures. Assessing the percentage of sodium chloride and chloride concentrations in parts per million (ppm or mg/L) will determine the impact of road salt on water quality. Additionally, monitoring these metrics before and after winter storms will provide insight into the environmental repercussions of road salt application practices. Despite the evident safety advantages, the runoff from road salt introduces elevated levels of dissolved sodium chloride into nearby water systems. The increased salinity threatens both water quality and native organisms that inhabit the affected areas.

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Poster Presentations (Continued)

Poster: 27
The Affect of Coach Pressure Between Male and Female Athletes
Sofía Lesmes Montes and Grant Hawkins
Mentor: Allison Kiefner-Burmeister

Many athletes have experienced competition anxiety, which can negatively affect their performance if it is not managed properly (Li et al., 2025). Competitive pressure is considered an important factor that can lead to anxiety and body image concerns in athletes. In recent years, coach pressure has also been recognized as playing a significant role in many areas of an athlete's life. High levels of pressure from coaches may increase anxiety and lower self-esteem. These effects can impact not only athletic performance but also an athlete's overall mental well-being. Previous studies suggest that different coping strategies can help reduce anxiety in athletes before, during, and after competition. However, not all athletes respond to pressure in the same way. Individual differences, such as personality traits, may influence how athletes perceive and manage coach pressure. Some athletes may feel motivated by high expectations, while others may experience increased stress and emotional discomfort. Mental health is a key component of athletic success, and athletes who are able to manage anxiety and stress are more likely to perform well and maintain long-term well-being (Li et al., 2025). This study aims to investigate the effects of coach pressure on male and female athletes using a coach pressure scale questionnaire (Eck & Byrd-Bredbenner, 2022).

Poster: 28
Comparison of Self-Esteem Between Athletes and Non-Athletes
Allyson McKean and Sofía Lesmes Montes
Mentor: Allison Kiefner-Burmeister

An individual's level of self-esteem may be related to the social relationships and social support provided through athletics (Eather et al., 2023). Body mass index is often used as a general indicator of body size and can relate to body image and self-confidence. As part of a larger study focused on comparing the differing body image of athletes and non-athletes, this investigation specifically analyzed self-esteem. Self-esteem plays an important role in mental health and overall well- being, especially in young adults (Farhoush et al., 2019). Ninety undergraduate students from a private university who participated in the study, including forty-four NCAA athletes participating in basketball and soccer teams and forty-six non-athlete students. Data were collected in person, measured by The Rosenberg Self-Esteem Scale (Rosenberg, 1989). The Rosenberg Self-esteem Scale was utilized to assess global self-worth by measuring both positive and negative feelings between athletes and non-athletes. Body mass index was negatively correlated with self-confidence, but it was unrelated to their self-liking. These findings demonstrate that although athletic participation may relate to healthier emotional outcomes, the pressures placed on athletes affecting their self–esteem is necessary to investigate. This relationship between athletics and self-esteem pressures is important for people to understand because this research shows the need to support positive body image beliefs as well as acknowledge these psychological pressures put on athletes.

Poster: 29
Bridging the Gap: Challenges in the Transition from Student Nurse to Registered Nurse in the Absence of Adequate Orientation
Tiffany Stultz, Elizabeth Otto, and Carrigan Vent
Mentor: Jessica Ellerbrock

New graduate nurses often feel overwhelmed and unprepared for the transition to practice from the academic setting. They experience heavy patient assignments, new skills, communication barriers, and difficulties with time management. These challenges lead to increased stress and uncertainty between the nurses themselves and the patients, which also leads to decreased patient satisfaction and trust. When it comes to new practice nurses, there are multiple orientation strategies that can be used to increase preparedness. These strategies lead to improved nurse and patient satisfaction, decreased stress, increased competency of skills, enhanced quality of care and improved communication. By using specific orientation programs, the new graduate nurses' orientation can be more individualized to prepare them more for independence.

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Poster Presentations (Continued)

Poster: 30
Exploring Workflow and Feasibility Considerations for Pharmacist-Led Pharmacogenomics in Outpatient Clinics
Ethan Palisoc, Casey Jones, William Schlabach, and Genevieve Bennett
Mentor: Julie Oestreich

Background: Pharmacogenomic (PGx) testing services have been incorporated in a variety of healthcare settings, although pharmacist involvement varies. Improved logistics will allow for seamless workflow incorporating pharmacist consultation in ambulatory care. This study aims to: 1) Identify barriers and facilitators to pharmacist-led PGx testing in ambulatory care, and 2) Pilot a pharmacist-physician collaborative PGx testing model that includes patient education, sample collection, insurance billing, and pharmacist consultation. Methods: Eligible participants include adult patients of one of the supporting prescribers at the clinics who are on at least one psychotropic medication, which includes treatment for depression, anxiety, ADHD, and others. The team will consent subjects (n=100) and collect buccal swabs for pharmacogenomic testing by GeneSight. The short-term objectives for the study include: 1) Optimize the logistics at each clinic site for implementation and billing, 2) Develop surveys for patients, providers, and clinical pharmacists, 3) Create a pharmacist-physician collaborative practice agreement for PGx services, and 4) Track the challenges/barriers and catalysts for implementation. Long-term endpoints include: 1) Gene-drug interactions identified, 2) Congruency of prescribing before and after PGx testing (for example, medication switches, dose adjustments, or more frequent monitoring), 3) Non-psychotropic medications for which the PGx test could potentially inform prescribing, 4) Time/# of visits/consults/billing events required for PGx testing, 5) Recommendations to alter drug therapy given by the clinical pharmacist, 6) Recommendations accepted and implemented by the provider, 7) Prior medication events which may have benefited from PGx testing, and 8) Successful insurance claims for PGx consultation billed by a pharmacist. Results: The research is in progress, and results from the short-term objectives will be presented at OPA. The team has established relationships with an industry partner (GeneSight) and two ambulatory clinic sites—one comprehensive-care clinic part of a regional health system and one independent pharmacy closely tied to a physician practice. Created documents include the pharmacist-physician collaborative practice agreement, patient survey, and provider/clinical pharmacist evaluation form for perceptions of the PGx service. Conclusion: This project highlights the implementation steps taken to develop a new pharmacogenomics service and describes how similar workflow could be established at other ambulatory care clinics.

Work to be presented at the OPA Annual Conference, April 9-11, 2026, Columbus, OH.

Poster: 31
Hour of Code: Virtual & Augmented Reality
Benjamin Strohmaier * and Wesley Stinehelfer *
Mentors: Helen Schneider and Mary Jo Geise

Virtual reality (VR) and augmented reality (AR) technologies have increased in popularity in recent years. There are many useful applications for VR and AR, including gaming, job training, therapy, social connection, and education. The Choose Ohio First scholars, alongside the Schmidlapp scholars, partnered with the Marathon's IT Explorers program to educate students in High School or younger on the usages, problems, and history of this technology. This is an annual program and some of our previous topics have been AI, web development, and RC cars. In addition to the informative presentation, the IT Explorers were also provided hands-on exposure to VR and AR through the Meta Quest 2 VR headset.

* This presenter is an Honors Program student.
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Poster Presentations (Continued)

Poster: 32
Comparative *In-silico* Studies on the Agonist Binding Pockets of S1pr1, S1pr3, And S1pr5: Toward the Identification of Molecular Switches
Giovanna Cestone *
Mentor: Daniel Osborne

Comparative *In-silico* studies on the agonist binding pockets of S1PR1, S1PR3, and S1PR5: toward the identification of molecular switches Patrick Deridal3, Sofia Alzugaray-Orellana1, Audrey Keplar2, Jonathan Deridal3, Giovanna Cestone2, and Daniel Osborne2 Sphingosine-1-phosphate receptors (S1PR1–5) are a family of G protein–coupled receptors (GPCRs) that serve as important therapeutic targets for various cancers, autoimmune, cardiovascular, and neurodegenerative diseases. Each receptor subtype couples to its distinct G proteins, including Gi, Gq, and G12/13, resulting in diverse downstream signaling outcomes. Although there is high structural homology between each S1PR subtype, selective agonism remains a significant pharmacological challenge in order to produce only desired therapeutic effects. This study aims to address this issue and identify unique binding pocket structures that contribute to receptor selectivity. To do so, we performed comparative in silico analyses of the agonist-binding pockets of S1PR1, S1PR3, and S1PR5. Active-state crystal structures of S1PR1, S1PR3, and S1PR5, with the wild-type ligand sphingosine-1-phosphate (S1P) in the agonist binding pocket, were analyzed using Molecular Operating Environment (MOE), where 50 docking poses were evaluated to identify key residues and characterize polar and nonpolar interactions. The most probable binding conformations were subsequently subjected to molecular dynamics (MD) simulations using GROMACS, during which residue distances were calculated to estimate binding free energies and determine which residues are most influential in selectivity amongst the three receptors. In future work, these findings will allow for an increased understanding of the agonist binding pockets among S1PR1, S1PR3, and S1PR5, improving the selectivity and binding efficacy of therapeutic drugs developed.

Poster: 33
Physical Property Analysis of Aqueous Methanol, 2-Propanol, and Acetone Mixtures
Lauren Crutchfield and Claire Bachman
Mentor: Hafed Bascal

This experiment investigated the physical properties of aqueous mixtures containing three different organic solvents: methanol, acetone, and 2-propanol. Each solvent was combined with water to form a series of increasing concentrations, which were then analyzed using measurements of refractive index, density, and surface tension. These properties were selected to examine how differences in intermolecular interactions influence the behavior of water–solvent systems. Refractive index measurements provided insight into changes in optical properties resulting from solvent composition, while density measurements were used to assess mass–volume relationships within each mixture. Surface tension measurements were conducted to evaluate the effects of each solvent on intermolecular forces at the liquid–air interface. The results showed measurable differences among the three mixtures and were graphed using Excel to emphasize the relationship with increasing solvent concentrations. Overall, the experimental data demonstrated that the addition of different organic solvents significantly alters the physical properties of water. This study highlights the utility of refractive index, density, and surface tension as complementary techniques for characterizing liquid mixtures and elucidating solvent–water interactions.

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Poster Presentations (Continued)

Poster: 34
Building Bridges to Academic Success Through Peer Mentorship
Madison Sutton, Samantha Rooney, and Rachel Stewart
Mentor: Megan McLaughlin

Peer mentorship programs can be beneficial for students during the transition from undergraduate studies to graduate studies. Research has found that students' sense of belonging, resilience, and academic success can be improved through peer mentorship programs. However, limited research has examined student-led peer mentorship for occupational therapy (OT) students that integrates all components. This study sought to answer, "What is the impact of a peer mentorship program on first year OT graduate students' resilience, sense of belonging and academic success?" An evidence-based peer mentorship program was created and implemented with first-year students at the University of Findlay's Doctoral OT program. These students were surveyed before and after the program's implementation during their first two graduate semesters. The quantitative survey results revealed increases in the mean scores for resilience and sense of belonging, but a decrease in the mean score for perceived academic success. A focus group conducted after the program was coded for themes that indicated that the decrease in perceived academic success may be due to the rigorous graduate-level course load. The current study found that a student-led peer mentorship program can facilitate the transition from undergraduate to graduate-level programs through strengthening students' sense of belonging and resilience. These results can be valuable for OT educators to consider implementing a similar student-led peer mentorship program.

Poster: 35
Juvenile Risk and Need Assessments: What Do Needs-Assessors Need?
Brianna Riggs, Katherine Hynes *,
and Charlese Yates *
Mentor: Jacob Burmeister

Juvenile risk and needs assessments are evidence-based tools used by criminal justice and mental health professionals to estimate a youth's likelihood of reoffending and to inform intervention decisions. Although these tools are widely implemented, less is accessible and known about how they function in real-world practice. The present study investigates this question: How do juvenile risk/needs assessment administrators describe their training, use of discretion, interpretation of results, and challenges in current practice? Following a literature review of risk/needs assessments for youth grounded in the Risk-Need-Responsivity model, this qualitative study will involve direct observation and semi- structured interviews with professionals who administer these assessments. These professionals may include probation officers, intake officers, social workers, detention staff, or case managers. The researchers will observe participants' assessment procedures using a structured observation guide followed by an in-depth interview to explore training experience, procedural approaches, interpretation methods, and perceived barriers. Because little research documents how these assessments are conducted in everyday practice, the findings will provide necessary insight into their real-world implementation. The measures move beyond manuals and guidelines to understand variation in practice and decision making. The results will help inform professional training and generate directions for future research in service of supporting rehabilitation efforts within the juvenile justice system.

Work to be presented at the Midwestern Psychological Association Conference, April 16, 2026, Chicago, IL.

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Poster Presentations (Continued)

Poster: 36
From Screen to Society: Media Portrayals and Trust in Scientists
Z Skarupa, Wyn Seegert, Charlese Yates *, and Emma Volle
Mentor: Robert Postic

In an era where mass media profoundly shape public discourse, the depiction of scientific professionals on screen plays a critical role in influencing societal attitudes. This project examines how fictional portrayals of scientists impact public opinion, utilizing data from the 2017 Pew Research Center report, "Most Americans see science-related entertainment shows and movies in either a neutral or positive light." With 81% of Americans consuming science-related entertainment— including genres like criminal investigation and medical dramas—the boundary between entertainment and real-world perception is increasingly porous. Our analysis of the Pew data reveals that, contrary to historical "mad scientist" tropes, contemporary media largely generate positive impressions of the scientific community. Significantly, 56% of regular viewers of crime dramas perceive these programs as portraying science and technology favorably. This project argues that these positive media representations are not merely passive entertainment but active drivers of institutional trust. By consistently presenting forensic scientists and technical experts as competent, ethical problem-solvers, these narratives reinforce public confidence in key societal sectors. We contend that this "media-generated trust" extends beyond the scientific community to the institutions they serve, particularly the criminal justice system. Ultimately, this research underscores the vital importance of positive media representation in fostering a supportive public climate for scientific advancement and its application in justice and governance.

Poster: 37
Sleep Effects on Athletic Performance: A Critically Appraised Topic
Raegan Smith
Mentor: Bart Welte

Sleep quality and duration are essential factors when considering athletic performance, injury prevention, and overall health of athletes. It is the backbone of recovery for both neuromuscular and neurocognitive functions. Even if an athlete follows strength training, stretching, and icing recommendations, it will not improve their recovery or performance if not paired with sufficient sleep. Differences in male and female athletes sleep needs were compared on their benefits to athletic performance. A compounding variable with female athletes is the effect on sleep due to having menstrual cycles. The different phases of the menstrual cycle, that female athlete experience, modulate sleep habits. Multiple peer-review articles and scientific journals were evaluated for key information about sleeping duration, quality, and overall effects on an athlete performance. The relationship between sleep quality, injury prevention, and athletic performance was then examined in order to educate current and future athletes on sleeping habits that will be most effective.

Poster: 38
Comparison of Emotional Affect Between Men and Women in College Athletics
Grant Hawkins
Mentor: Allison Kiefner-Burmeister

This study compares athletes and non-athletes at the University of Findlay on positive and negative affect. As a secondary variable there will be a comparative discussion between men and women within the respective affect. This further differentiates the study into athlete/non-athlete and male/female. This seeks to find if female or male athletes emotionally benefit more or less in college athletics. Previous research establishes higher levels of stress among athletes in university. A study used the likelihood that a student athlete would need or seek counseling as a measurement of stress (Pritchard & Wilson, 2005). Student athletes were less likely to seek counseling; approximately 10 percent saw a counselor (Pritchard & Wilson, 2005). When comparing university men and women in counseling-seeking behavior, men were more likely to conceal vulnerability and less likely to get help (Davies et al., 2000). Men and women in college athletics face unique stressors, that can be explored through positive and negative affect.

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Poster Presentations (Continued)

Poster: 39
Different Nutritional Sources and their Effect on *Nepenthes sanguinea* Fluid Fluorescence Patterns
Caleb Acker *◊
Mentor: Lauren Sandhu

Nepenthes sanguinea is a carnivorous plant native to Peninsular Malaysia and southern Thailand that captures and digests insects to obtain nutrients in nutrient-poor habitats. Prey are attracted to pitchers through a combination of nectar production, visual trap coloration, and odor mimicry. Preliminary observations indicated that pitcher fluid exhibits fluorescence that varies among plants and feeding conditions, suggesting that nutrient source may influence fluid fluorescence. N. sanguinea plants are being grown in the University of Findlay greenhouse and fed four different nutritional sources: mealworms (*Tenebrio molitor*), artificial gel food, isopods (*Porcellio laevis*), and crickets (*Acheta domesticus*). Plants are fed every other week, and 5 mL pitcher fluid samples are collected one week after each feeding. Samples are analyzed using a Vernier spectrometer to measure full-spectrum fluorescence. Fluorescence spectra are compared among treatments and across sampling periods to evaluate differences in patterns. This study aims to determine whether nutrient source influences fluorescence characteristics of pitcher fluid, which may reflect if fluid fluorescence is an attraction mechanism for prey.

Poster: 40
Computing Binding Free Energies Across S1PR: Development of Mathematical Models for Agonist Drug Design
Eugene McCall *
Mentor: Daniel Osborne

Cancer is a group of diseases characterized by unregulated cell growth and development during interphase. Cancer has four notable hallmarks: tumor cell proliferation, invasion, metastasis, and angiogenesis. The sphingosine-1-phosphate receptors (S1PRs) are a type of G protein-coupling receptor (GCPR) that have the potential to be either cancer promoting or cancer suppressing, depending on the cell signaling pathway that is activated. The S1P2 receptor stands out from the other S1PRs due to it primarily activating the G12/13 pathway, which leads to tumor suppression. The discovery of the active conformation of the S1P2 crystal structure has allowed us to utilize computational modeling and in-silico design to analyze and interpret how mutations of key amino acid residues affect sphingosine-1-phosphate (S1P) binding in the S1P2 agonist binding pocket. Through this method, we plan to develop a mathematical model that can predict the selectivity of S1P2 agonists.

Poster: 41
From Classroom to Chaos: Transition Shock in New Graduate Nurses
Raegan Miller, Alexys Antal, Chloe Callahan, and Kaylynn Simon
Mentor: Jessica Ellerbrock

The transition from nursing student to newly graduates nurse is a critical period often marked by “transition shock,” which can negatively affect nurses’ well-being, job satisfaction, and quality of patient care. The purpose of this review was to examine where transition shock arises for new graduate nurses, identify contributing factors, and explore strategies that support a successful transition into clinical practice. The evidence indicates that transition shock commonly arises from inadequate training, challenging department placements, heavy workloads, night shifts, and limited emotional support. These factors contribute to increased stress, self-doubt, and difficulty adapting to professional responsibilities. However, there are also protective strategies that reduce transition shock, including supportive experience staff, positive work environments, gradual increases in workload, regular mental health check-ins, and structured coping strategies. When effective support systems are in place, new graduate nurses report lower stress levels, decreased turnover rates, and improved satisfaction for both staff and patients. This learning is valuable to nursing practice as it emphasizes the role of healthcare organizations in promoting nurse retention, well-being, and patient safety. Implementing structured support, mentorship, and ongoing mental health resources can ease the transition for new graduate nurses and foster a more resilient nursing workforce.

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Poster Presentations (Continued)

Poster: 42
Crisis at the Bedside: Struggles with Low Staffing and High Workload
Mercedes Steen, Lauren York, Amanda Meyer, and Kevin Rickle
Mentor: Jessica Ellerbrock

Nurses are the backbone of healthcare, yet they continue to face environments that consist of being short-staffed and excessive workloads. The core research guiding the framework of this investigation: "How do chronic staffing shortages and pressure from increased workload demands affect nurses' wellbeing, patient care outcomes, and healthcare sustainability?" Exploring these questions further provides a better understanding of the consequences of staffing challenges within the nursing profession. Chronic understaffing is associated with nurse burnout, emotional exhaustion, moral distress, and job dissatisfaction which can lead to unsafe patient care. Pursuing this analysis is meaningful to the nursing field because it emphasizes the critical connection between staffing levels, nurse retention, and patient safety. As up and coming nurses we cannot become complacent and we must stand up for our future making it better and healthier. By identifying the consequences of inadequate staffing, the literature review supports the need for evidence-based staffing policies, improved leadership strategies, and long-term workforce planning. Addressing low staffed nurses to high patient ratios and mitigating burnout from excess workload will not only protect nurses' wellbeing but also ensure optimal clinical outcomes, beneficence, and satisfactory patient care.

Poster: 43
In-silico Design, Synthesis, and Site-Directed Mutagenesis of S1PR2 Selective Antagonists for the Treatment of Leukemia
Rebecca Chmiel *
Mentor: Daniel Osborne

S1PR2 also known as sphingosine-1-phosphate receptor 2 is one of five S1P G-protein-coupled-receptors with Gαi, G12/13, and Gαq subunits for downstream signaling of pathways including Ras/ERK pathway, RhoGEF pathway, and diacylglycerol(DAG) pathway . S1PR2 utilizes three hydrophobic binding pockets, a ligand binding site, and an electrical binding region. No current literature has been found to do site-directed mutagenesis with molecular dynamics to the S1PR2 binding pocket . Using Molecular Operating Environment (MOE), all 38 identified S1PR2 selective antagonists were docked to a preconceived S1PR2 crystal computational model and the resulting amino acid residues were examined within the binding pocket. Site-directed mutagenesis and subsequent molecular dynamics was applied to the ligand that appeared to have the most interaction within the mutated binding pocket. The determination of the binding pocket residues which lead to conformational changes allows for better screening of potential therapeutic compounds and gives greater ability for researchers to develop therapeutic compounds that can adapt to the mutations via backup site mutagenesis. Currently there are preclinical S1PR2 selective antagonists, but no approved prescription drugs.

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Poster Presentations (Continued)

Poster: 44
An Investigation of the Effects of Captivity and Selective Breeding on spontaneous Turn Alternation in the Terrestrial Isopod, *Porcellio Spinicornis*
Kate Caster *◊
Mentor: Vincent 'Gino' Coppola

Livestock behavior strongly influences how rearing and processing facilities are designed and managed, making understanding their behavior essential to improving animal welfare, management tactics, and overall product yield and quality. To best understand livestock behavior, their wild ancestry must be taken into consideration. Livestock are domesticated descendants of extinct or extremely limited animals, and the inability to directly compare the behavior of the domesticated species with their wild counterparts makes it difficult, if not impossible, to study the effects of captive rearing and artificial selection on naturally occurring behaviors in these species. Thus, alternative animal models are necessary to study these effects. One practical animal model for this research is the woodlouse (a terrestrial isopod) as wild populations are abundant, and many species have a history of being captive-bred in the exotic pet trade. In the current study, I used a multiple T-maze to study turn alternation (TA), a navigation strategy identified in woodlouse (*Porcellio spinicornis and Porcellio scaber*) used to escape predators and inhospitable environments. Statistical analyses showed wild-caught woodlice to TA at rates significantly above chance, while captive-bred woodlice did not. These findings demonstrate how certain behaviors may be diminished in captive-reared or domesticated animals, and highlight how invertebrate models may contribute to the understanding of animal behavioral relevant to livestock management.

Poster: 45
Effective Strategies for Integrating Pharmacogenomic Data into Electronic Health Records (EHRs)
Anil Anisha Mudliar
Mentor: Kelli Recker

Pharmacogenomics (PGx) is changing the face of precision medicine by enabling clinicians to tailor drug therapy based on individual genetic profiles. Although its clinical utility has been demonstrated, PGx data are implemented inconsistently and underused in Electronic Health Records (EHRs). The research question this study addresses is: What are the most effective and scalable approaches for incorporating pharmacogenomic data into EHR systems to support clinical decision-making? The aim is to integrate evidence-based interventions that can occur between genomic discovery and clinical implementation. A qualitative systematic literature review was conducted using peer-reviewed sources from PubMed, IEEE Xplore, ScienceDirect, and Google Scholar, with a specific focus on publications from the last 15 years. Comparative content analysis was used to identify themes common across clinical implementation, technical infrastructure, and regulatory frameworks. Results indicate that when integrated into clinical decision support (CDS), the concept of PGDx-directed prescribing can greatly improve medication safety, efficacy, and personalization. Nevertheless, fragmented data standards, low interoperability, disrupted workflows, high implementation costs, and a lack of clinician education are barriers to integration. The adoption is further complicated by ethical and regulatory issues such as privacy of genetic data, informed consent, and ambiguity in policy choices. The HL7 FHIR standards, AI-based CDS, and blockchain-based data protection are emerging innovations that offer a promising avenue for scalable, secure integration. The research poster is relevant to the field of health informatics, as it outlines practical, multidisciplinary interventions to ensure clinical practice aligns with technology use and regulatory compliance. This work can encourage the creation of interoperable, patient-centered systems to promote safe, equitable, and data-driven precision medicine by focusing on standardization, clinician engagement, and ethical governance.

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Poster Presentations (Continued)

Poster: 46
Enhancing Preschool Readiness: The Impact of an Occupational Therapy Caregiver Coaching Program
Macey Schlosser and Megan Trausch
Mentor: Lisa Sakemiller

Preschool provides the foundation for child development, with Head Start educators supporting kindergarten readiness through the Ohio Department of Education's Early Learning Assessment (ELA), which includes social foundations, language and literacy, and physical well-being and motor development. Although caregivers may lack confidence or competence in teaching these skills, caregiver involvement is associated with increased kindergarten readiness (Bierman et al., 2015). This study investigated the effectiveness of occupational therapy (OT) led caregiver coaching in increasing caregivers' confidence and competence in the social-emotional ELA domain, identified as the largest need in the pre-test survey. OT practitioners collaborated with caregivers to identify priorities, develop strategies, and support home-based practices. Pre- and post-test data were compared to assess the impact of caregiver coaching. Preliminary findings suggest that OT-led caregiver coaching may improve caregiver confidence and competence in the social-emotional domain, enhance developmentally meaningful activities, and support readiness for kindergarten. Literature is limited on the effects of occupational therapy-based caregiver coaching interventions; this study contributes to existing evidence and notes the need for additional research.

Poster: 47
Impact of CYP2C19 *2/*3 Alleles Polymorphisms on Clopidogrel Efficacy and Bleeding Risk: A Pharmacogenomic Intervention Analysis
Harbinder Dhariwal and Charlotte Heiser
Mentors: Julie Oestreich and Jason Guy

Clopidogrel is a widely prescribed antiplatelet agent used to reduce thrombolytic risk in patients with cardiovascular disease. Its clinical efficacy is highly dependent on metabolic activation by the cytochrome P450 enzyme CYP2C19. Genetic polymorphisms in CYP2C19, particularly the no function *2 and *3 alleles can relatively decrease clopidogrel activation and result in diminished antiplatelet response compared to expected response. As pharmacogenomic-guided therapy becomes increasingly integrated into clinical practice, identifying patients with clinically relevant CYP2C19 variants remains critical to optimizing treatment outcomes and minimizing adverse cardiovascular events. To address this need, we performed genotyping of CYP2C19 *2 and *3 alleles using real-time PCR–based allelic discrimination in DNA samples taken from random volunteers. Genotype data were analyzed to assign predicted metabolizer status and simulate clinical decision-making using established CPIC guidelines. Individuals carrying no function alleles were classified as poor metabolizers, indicating reduced clopidogrel efficacy and increased thrombolytic risk, according to current CPIC data. In these cases, alternative antiplatelet agents can be considered for appropriate therapy in poor clopidogrel metabolizers to increase efficacy and safety clinically. The presence of CYP2C19 *2/*3 variants within the sample population highlights the clinical relevance of preemptive pharmacogenomic testing and supports its role in guiding personalized antiplatelet therapy. This approach is utilized to illustrate local presence of variant genotypes and impact it can have on current clinical practice.

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Poster Presentations (Continued)

Poster: 48
ZOE192822 as a Selective Agonist to Sphingosine-1-Phospate Receptor Subtype 2 to Suppress Tumor-Promoting Pathways
Ethan Lantz *
Mentors: Daniel Osborne and Nathan Tice

Aberrant signaling via the sphingosine-1-phosphate (S1P) receptor family has been implicated in tumor cell proliferation, migration, therapeutic resistance, angiogenesis, tissue invasion, and immune evasion across multiple cancer types. Among the five S1P G protein-coupled receptor subtypes (S1P1-5), S1P2 has emerged as a compelling therapeutic target due to its coupling to the G12/13 signaling pathway (activates Rho/ROCK), which has roles in tumor suppression and oncogenic progression. Here, we investigate the selectivity of the novel small-molecule candidate ZOE092822, a potential anticancer therapeutic, focused on engagement with S1P2 over the other S1P subtypes. Structure-based molecular docking was employed to evaluate the binding poses and predicted affinities of ZOE092822 with the orthosteric binding pockets of all five subtypes. Comparative analysis revealed an enhancement in docking interactions and binding free energies for S1P2, driven by favorable hydrophobic complementarity and specific polar contacts within the transmembrane helices. Residues unique to S1P2 contributed to stabilizing ligand orientations that were disfavored sterically or electrostatically in other subtypes. To assess and measure this selectivity, molecular dynamics simulations were conducted in a lipid bilayer environment. ZOE092822 demonstrated sustained binding in the S1P2 pocket with reduced ligand RMSD, stable hydrogen-bonding, and minimal receptor structure disruption in the timeframe. Simulations with the other four subtypes showed increased ligand mobility and engagement with the receptor residues, consistent with weaker or less specific binding. Collectively, these results indicate that ZOE092822 possesses computationally predicted selectivity for S1P2, supported by static docking metrics and dynamic stability. This subtype-selective binding profile highlights ZOE092822 as a promising lead compound for modulating the G12/13 pathway to suppress tumor metastasis.

Poster: 49
Computational Characterization of Spns2-Ligand Interactions for Targeted Inhibition
Quinn Carter
Mentor: Daniel Osborne

Spinster homolog 2 (Spns2) is a membrane transporter responsible for exporting sphingosine-1-phosphate (S1P), a lipid signaling molecule involved in immune regulation, vascular development, and cancer progression. Despite its biological importance, the structural dynamics of Spns2 and its interactions with inhibitory ligands remain incompletely understood. This project aims to categorize Spns2 binding modes, evaluate protein-ligand stability, and identify potential inhibitory molecules using computational approaches. Molecular docking analyses were performed to examine interactions between Spns2 and selected inhibitory compounds, enabling identification of key residues involved in ligand binding. Molecular dynamics simulations were used to assess the stability of protein-ligand complexes over time and to analyze conformational changes within Spns2. Preliminary results indicate stable binding interactions within predicted functional regions of the transporter, supporting the feasibility of small-molecule inhibition. To extend these analyses, virtual screening methods were applied to novel candidate molecules with favorable docking scores and interaction profiles. This work contributes to an improved understanding of Spns2-ligand interactions and demonstrates the value of computational modeling in early-stage drug discovery. The findings are expected to inform future experimental validation efforts and support the development of targeted Spns2 inhibitors.

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Poster Presentations (Continued)

Poster: 50
Mapping the Sphingosine Kinase 1 (SK1) Binding Pocket for the Design of Inhibitor Drugs
Audrey Keplar *◊
Mentor: Daniel Osborne

Sphingosine is a naturally occurring molecule within the intracellular environment. Sphingosine can be phosphorylated by the enzyme sphingosine kinase 1 (SK1) to form sphingosine-1-phosphate (S1P). The S1P molecule can then be transported outside the cell by sphingosine-1-phosphate transporter 2 (Spns2). When outside of the cell, the S1P molecule can bind to the S1PR family of G-protein coupled receptors. When activated, these receptors can promote either tumor promoting or tumor suppressing pathways. Tumor cell growth and proliferation are common hallmarks of cancer. Preventing sphingosine from being phosphorylated to S1P by the SK1 enzyme would prevent S1P from activating tumor-proliferating pathways, which is crucial in cancer therapy. The binding of sphingosine in the SK1 binding pocket was observed by docking the sphingosine crystal structure into the SK1 enzyme using MOE (Molecular Operating Environment). We used MOE to observe the amino acid residues within the SK1 binding pocket and determine which residues are important for stability within the binding pocket. Molecular dynamics simulations were used to measure the atomic distances and binding free energies of sphingosine in the SK1 binding pocket. By understanding the structure of sphingosine within the SK1 binding pocket, we used MOE to dock a variety of designed SK1 inhibitors and determine their stability. Understanding and mapping the binding pocket of the SK1 enzyme is crucial for designing SK1 inhibitors, which are used in treating multiple types of cancer. Future work involves using both the crystal structure and molecular dynamics data to design potential SK1 inhibitor drugs.

Poster: 51
In-silico Evaluation of Imidazole Based Therapeutics to Treat Organophosphorus Inhibited Acetylcholinesterase
Trevor Owens
Mentors: Daniel Osborne and Alex Lovins

Organophosphorus (OP) inhibition of acetylcholinesterase (AChE) poses a deadly risk to human health. Despite decades of research on oxime-based therapeutics, an FDA approved drug known as 2-PAM is the leading therapeutic for OP-inhibited AChE. 2-PAM falls short in its broad-scope activity and efficacy due to permanently charged pyridinium ring preventing it from crossing the blood brain barrier and the formation of a toxic byproduct after reactivation. However, despite efforts to replace oxime therapeutics, many of the new candidates fall short in broad-scope activity or sufficient efficacy relative to the oxime therapeutics. In this study, the therapeutics analyzed incorporate an amide moiety with a peripheral aromatic substituent designed to interact with the peripheral anionic binding site of AChE, linked to an imidazole warhead intended to interact with the OP-inhibited catalytic serine residue. The potential of these novel therapeutic candidates to reactivate OP-inhibited AChE was evaluated using computational methods. Molecular docking and binding analyses were performed on a VX-inhibited human AChE model to assess ligand binding orientation, key active-site interactions, and predicted binding affinity. These computational results provide insight into structure-activity relationships relevant to therapeutics for AChE reactivation and support the use of in silico approaches for prioritizing candidate therapeutics prior to experimental evaluation.

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Poster Presentations (Continued)

Poster: 52
The Role of Bioinformatics Tools in the Processing and Interpretation of Gnomic Data in Disease Genetics
Olive Neerudu
Mentor: Kelli Recker

Next-generation sequencing (NGS) technologies have significantly advanced disease genetics research by enabling large- scale analysis of genomic data and supporting the development of precision medicine. Despite these advances, the interpretation of complex genomic data remains challenging due to limitations in current bioinformatics tools. The purpose of this research is to address the question: How do bioinformatics tools improve the processing and interpretation of genomic data in disease genetics research? The study focuses on understanding how these tools support the identification of disease-related genetic variants, predict their functional impact, and contribute to clinical decision- making. This research highlights that bioinformatics tools play a critical role in improving data processing efficiency, managing large genomic datasets, and enhancing the detection of genetic variants associated with disease. At the same time, the findings indicate that existing tools face challenges related to accuracy, consistency, and the interpretation of complex biological data, particularly when integrating information from multiple omics sources. These limitations can affect the reliability of genetic analysis and the translation of research findings into clinical practice. The insights gained from this research are valuable to the fields of genomics and health informatics because they emphasize the need for continued improvement and standardization of bioinformatics tools. By identifying both the strengths and shortcomings of current approaches, this study supports the development of more reliable analytical methods, which can lead to improved diagnostic accuracy, better understanding of disease mechanisms, and more effective personalized treatment strategies in healthcare.

Poster: 53
Influence of Telehealth Use for Mental Health and Substance Abuse
Sindhu Pavani Tandai
Mentor: Kelli Recker

Mental health and substance use disorders present ongoing challenges in Findlay and Hancock County, where access to care, stigma, and service coordination limit effective treatment. Despite the presence of local providers, rural barriers continue to affect timely and continuous care. This study evaluates the local mental health and substance use treatment landscape using a mixed-methods approach that combines public health data, surveys, and stakeholder interviews. Guided by the Social Determinants of Health and Continuum of Care frameworks, the analysis identifies key systemic and policy-level gaps. Findings reveal constraints related to service availability, transportation, workforce capacity, and fragmented care delivery, as well as stigma that discourages treatment-seeking. The presentation offers evidence-based policy recommendations focused on improving access, strengthening service integration, and supporting community-level stigma reduction efforts. While centered on Findlay and Hancock County, the findings have relevance for similar rural communities.

* This presenter is an Honors Program student.
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Poster Presentations (Continued)

Poster: 54
Predictive Intelligence in Mental Health: Enhancing Patient Outcomes
Anjali Maddi
Mentor: Kelli Recker

Globally, millions of people suffer from mental health illnesses, which puts a significant strain on both patients and healthcare systems. The use of professional interpretation and patient self-reporting in traditional treatment procedures can restrict the precision of care and delay diagnosis. By detecting danger sooner, customizing therapies, and more accurately predicting treatment results, developments in artificial intelligence (AI), and predictive analytics in particular, present exciting prospects to improve mental health care. This study proposal synthesizes evidence from case studies, expert analysis, and existing literature to investigate how AI-powered predictive analytics can improve patient outcomes. Personalized treatment planning, AI-assisted diagnosis, and real-time monitoring with information from electronic health records are important areas of focus for both patient-generated inputs and wearable technology. Other topics included in the paper include model accuracy, algorithmic bias, ethical issues, and data privacy, all of which have an impact on how safely and successfully AI is incorporated into clinical practice. AI's potential and limitations in mental health contexts are assessed in this study using a qualitative, secondary research design. Results indicate that predictive analytics, especially in impoverished or rural settings, can help physicians manage complicated patient demands, enhance treatment precision, and encourage earlier intervention. But for responsible implementation, openness, informed consent, and long- term assessment of AI-powered solutions must be carefully considered. In addition to providing assistance for doctors, legislators, and developers looking to use predictive intelligence to improve patient outcomes, this study adds to the larger discussion on incorporating AI into mental healthcare by examining these prospects and difficulties.

Poster: 55
The Effects of Remote Work on Productivity and Mental Health
Jayasri Gonuguntla
Mentor: Kelli Recker

This study examines the effects of remote work on employee productivity and mental health through a systematic review of existing literature. The primary purpose of this research is to understand how remote work influences organizational performance and employee well-being and to identify key factors that shape these outcomes across different industries and work environments. By analyzing findings from recent scholarly articles, reports, and theoretical frameworks, this study reveals that remote work offers significant advantages such as flexibility, improved work-life balance, and increased autonomy, which can enhance productivity. However, the review also highlights persistent challenges, including social isolation, blurred boundaries between work and personal life, and increased risks of stress and burnout, which negatively impact mental health and, in some cases, work performance. The insights from this literature review are valuable to the fields of health informatics, organizational management, and workplace policy development. They provide evidence- based understanding of how digital work environments affect both productivity and psychological well-being. This research can support organizations and policymakers in designing effective remote work strategies and digital support systems that promote sustainable productivity and healthier work practices in modern workplaces.

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Poster Presentations (Continued)

Poster: 56
Understanding Graduate Student Perceptions: Advancing AI Literacy In Occupational Therapy Education
Chloe Mack and Mirena Miller
Mentor: Holly Markley

Artificial intelligence (AI) is a concept that continues to advance into higher education, particularly within healthcare fields. The literature revealed a need for increased literacy regarding AI use, specifically within the realm of occupational therapy (OT). Articles from Busch 2023 and Jackson 2024 echoed this need in which graduate students discussed a desire for a structured education session on this topic. Therefore, the purpose of this study was to examine how graduate OT students' perceptions change following an education session that addressed AI use while upholding ethical and clinical reasoning skills and considerations for OT practice. This prompted a 1-hour AI literacy education session, where a pretest/posttest survey was used to gather data regarding OT graduate students' perceptions of AI use. The results of the education session showed an initial limited understanding about AI use, however, following the education session data showed an overall positive change in student perceptions. While the information learned from this study was preliminary foundational research, it did provide further validation that there is a need for AI literacy education in OT. This study can benefit higher education as it pinpoints how an education session can advise students on beneficial AI tools while also protecting their abilities to maintain ethical standards and clinical reasoning skills. This then can be translated into clinical practice in the field of OT.

Poster: 57
Applying Microscopy to the Structural Analysis of Handcrafted Crochet
Brynn Spicher *◊
Mentor: Justin Rheubert

Crochet is the art of forming yarn into patterned fabric using a hooked needle, and microscopy is the use of magnification to observe objects that are unable to be seen by the naked eye. While crochet may appear simple, with it requiring only a hook and yarn, many variables can influence the quality of the final piece. Factors such as yarn tension, hook size, and fiber composition all contribute to a piece's texture and durability. Using microscopy, we are able to visualize how each element impacts the piece at a structural level that cannot be done with the naked eye. In addition, this application of microscopy demonstrates how it can extend beyond the traditional laboratory settings and into creative fields.

Poster: 58
Nutritional Recovery Knowledge and Perceived Implementation Among College-Aged Endurance Athletes: A Critically Appraised Topic
Macee Reckard
Mentor: Bart Welte

Nutritional recovery is a critical component of athletic performance, injury prevention, and long-term health, particularly for endurance athletes who experience high training volumes. The purpose of this research was to examine nutritional recovery in college-aged athletes, with a focus on recovery knowledge, recommended practices, and common discrepancies between evidence-based guidelines and reported athlete behaviors. The research also sought to explore differences in recovery needs between endurance and non-endurance athletes and identify factors contributing to inconsistent recovery implementation. The literature consistently emphasizes the importance of carbohydrate and protein intake, adequate hydration, and micronutrient support for optimizing glycogen resynthesis, muscle repair, and overall recovery. Conclusions made in several studies indicate that college-aged athletes demonstrated limited nutrition knowledge. Consistent, common findings were the importance of carbohydrate availability and post-exercise fueling, while discrepancies exist related to optimal macronutrient ratios, recovery time frames, and the effectiveness of supplements versus whole foods. The findings in literature highlight a clear need for improved nutrition education tailored to college-aged endurance athletes. Identifying gaps between scientific recommendations and implementation can guide the development of targeted educational interventions, enhance performance, and support endurance athletes within collegiate athletic settings.

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Poster Presentations (Continued)

Poster: 59
Effects of Phytoremediation on Horizontal Gene Transfer
Sierra Kirby *◊, Allison Diller *◊, Morgan Koenig *◊, Kaitlyn Siefert *◊, Payton Miller *◊, and Mackenzie Sirks *◊
Mentor: Bethany Henderson-Dean

The widespread use of antibiotics in medical, veterinary, and agricultural practices has resulted in the accumulation of antibiotic residues within aquatic systems. This environmental contamination fosters the development and dissemination of antibiotic-resistant bacteria and antibiotic resistance genes, posing significant ecological and public health challenges. This study investigates the potential role of aquatic plants, specifically *Vesicularia montagnei* and members of the Lemnoideae family, in influencing horizontal gene transfer (HGT) among bacterial populations. Two *Escherichia coli* strains were employed: an F+ tetracycline-resistant donor capable of HGT and an F^- ampicillin-resistant recipient. We examined whether co-cultivation with aquatic plants promoted the emergence of dual-resistant strains, signifying HGT. Preliminary data revealed an initial increase in HGT activity within plant-containing systems during the first 24 hours, followed by a progressive decline in total bacterial populations over a 10-day observation period. These trends were not observed in control systems lacking aquatic plants, where bacterial populations and HGT activity remained relatively stable. Collectively, these findings suggest that aquatic plants may influence microbial community dynamics by initially facilitating gene exchange before contributing to the suppression of bacterial abundance and a potential reduction in antibiotic resistance gene prevalence over time. Ongoing research seeks to determine how plants influence HGT, with the goal of informing phytoremediation strategies to reduce antibiotic resistance in aquatic ecosystems and protect public health.

Poster: 60
From Prompt to Prescription: An AI Multi-Platform Evaluation of First-Line Cardiovascular Therapy Recommendations
Carlie Bertke and Morgan Hannon
Mentors: Rachel Kahle and Nicole Horstman

The use of artificial intelligence (AI) platforms to obtain drug information and therapeutic recommendations is rapidly expanding in both clinical practice and pharmacy education. Although these platforms can provide quick and organized responses, their clinical reliability remains uncertain, and inaccurate recommendations could contribute to unsafe clinical decision-making. This study will evaluate the accuracy, completeness, and consistency of first-line pharmacotherapy recommendations generated by five widely accessible AI platforms, ChatGPT Free, ChatGPT Plus, OpenEvidence, Microsoft Copilot, and Google Gemini. Using a standardized first-line pharmacotherapy question, each of ten cardiovascular disease states will be assessed ten times per platform using new sessions. AI-generated recommendations will be compared with current, prespecified U.S. evidence-based clinical practice guidelines and scored independently by two licensed clinical pharmacists using a structured guideline-concordance rubric. The data collected will determine the percentage of guideline-consistent recommendations, measure agreement across AI platforms, and identify clinically meaningful omissions and errors, including missing elements such as drug, dose, frequency, and duration. These findings will clarify whether AI platforms can be used as supportive tools for first-line pharmacotherapy recommendations, specifically in cardiovascular disease states, and will inform guidance for responsible use of AI in clinical practice and pharmacy education. Data collection and results are currently in progress but will be available at the time of SSC.

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Poster Presentations (Continued)

Poster: 61
Effects of Footwear on Pediatric Feet: A Critically Appraised Topic
Renee Sampson
Mentor: Bart Welte

Early childhood is a critical period of musculoskeletal development, during which footwear can affect foot structure and gait. The aim of this research was to investigate the impact of footwear on foot development and gait in children, focusing on early independent walking. A collection of peer-reviewed studies were reviewed to examine current evidence on pediatric foot development, mechanics, and gait variables. Evidence compiled provides an understanding of how varying types of footwear influence musculoskeletal development, foot structure, balance, and gait biomechanics in young children. It was determined that developing feet are sensitive to external influences such as footwear. Footwear impacts musculoskeletal development and gait characteristics, particularly in young children. Evidence supports the use of flexible, well-fitted shoes to promote healthy foot development and efficient gait; however, further research is needed on long-term effects in children. These findings are valuable for clinicians, researchers, and caregivers by stressing the importance of proper footwear selection.

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