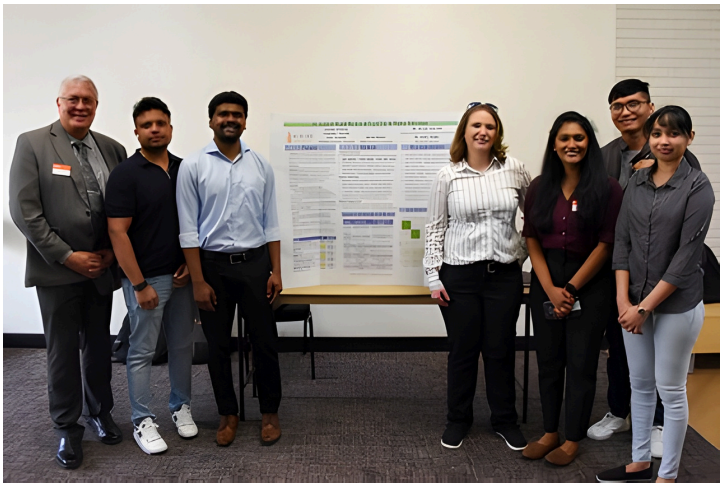
AUM

Experiential Education and Engagement Center

Celebration of Research, Creative Activity, and Community Engagement

April 24, 2026



Message from the Provost

Dear members of the Warhawk family,

It is truly a pleasure to welcome you to the 6th Annual Celebration of Research and Creative Activity! Today we celebrate our undergraduate and graduate students' achievements and acknowledge their milestones with heartfelt appreciation. This celebration gives our cherished students an opportunity to share their research university-wide with research posters and creative activity exhibits!

The Office of the Provost has vigorous goals for AUM in the areas of research, creative activity, and community engagement benefitting faculty, staff, students, and our local community. AUM's strategic plan includes a purpose to enhance a research culture and investigative community supporting quality teaching and educational programs.

In support of this aim, in 2021 AUM secured a Sponsored Program Administrative (SPAD) grant award in the amount of $625,535 from the National Institute of Health (NIH) to build our research enterprise's capacity and infrastructure over three years, and to host various research events featuring speakers from NIH and other experts from premier research institutions. Thanks to the SPAD program, there has been increased participation of faculty, staff, and students in research and research training programs; enhancement of the Office of Sponsored Programs and Research (OSPR); and attainability of certifiable professional trainings to senior leadership and the staff of OSPR. As a result, AUM has been awarded a total of 110 awards in the total amount of $43,630,017 for fiscal years, 2021 through 2025.

Additionally, AUM has increased its support of faculty and students monetarily to support research-related efforts through its Grants-in-Aid Program, Graduate Student Research Advisory Committee, and the Undergraduate Research Council Committee. Experiential Education and Engagement Center (EEEC) has reported the funding of 101 faculty research projects in the amount of $318,741 (mini grants) and has provided 200 students with scholarships for directed research/internship courses in the amount of $100,021 since Spring 2021. The results of our research, creative activity, and community engagement endeavors are positively impacting society and our economy and are being shared nationally through various platforms!

Congratulations to all participants! Thank you greatly for your valuable contributions to our research goals!

Go Warhawks!

Mrinal M. Varma, Ph.D.

AUM

EXPERIENTIAL EDUCATION
AND ENGAGEMENT CENTER

Message from the Experiential Education and Engagement Center

Thank you for participating in and attending the 2026 Celebration of Research, Creative Activity, and Community Engagement. This event was made possible thanks to the vision, dedication, and support of the Provost and Senior Vice Chancellor, Dr. Mrinal Varma.

We are proud to recognize the outstanding efforts of our students and faculty, who have worked diligently to showcase their findings and creative works. Under the mentorship of dedicated faculty members, students from across all colleges and departments have contribute work that exemplifies the spirit of inquiry, innovation, and community impact.

This annual celebration affirms our commitment to fostering a vibrant culture of research, creative endeavors, and community impact at Auburn University at Montgomery. We hope it serves not only as a platform for recognition, but also as a source of inspiration for students to explore new ideas, collaborate with faculty, and participate in these activities in their time here at AUM.

Community-Engaged Learners

Annie Anderson

Major: Economics

I have been actively engaged in campus and community involvement through leadership, media, and service-based initiatives. At Auburn University at Montgomery, I currently serve as President of the Service and Leadership Club (SLC), where I coordinate volunteer efforts, organize campus engagement events, and collaborate with student affairs to increase student participation. In this role, I've helped lead initiatives that encourage civic responsibility and create more accessible opportunities for students to get involved. I also serve as Vice President of the Economics Club, where I assist in planning academic and professional development events. In addition, I am a staff writer for the student newspaper, AUMnibus, where I cover campus events and issues impacting the student body. Through both leadership and journalism, I consistently engage with and contribute to my campus community.

Nandini Bolekar

Major: Management Information Systems

Engaging with my community has been the bridge between theory and impact. Academically, it has breathed life into my studies, transforming textbook concepts into tangible solutions for local challenges. Professionally, it has honed my ability to collaborate with diverse teams, teaching me that the most innovative ideas emerge at the intersection of different perspectives. Most importantly, it has shaped my character, fostering a profound sense of responsibility and a lifelong commitment to contributing meaningfully to the world around me.

Riley Cannon

Major: Secondary Education

Harmony Carroll

Major: Pre-Nursing

JaKyra Chambers-Bryant

Major: Speech-Language Pathology

Research involvement provided me with a deeper perspective on areas within my career field; consequently, providing valuable groundwork. Community engagement has strengthened my leadership characteristics, enhancing my position as a mentor to my peers. Along with shaping me academically and professionally, community interaction enables me to cross paths with others around me cultivating meaningful connections.

Ngoc Bao Tran Dang

Major: Pre-Nursing

Engaging with the community has provided a vital bridge between my academic studies and real-world application. Professionally, it has honed my communication and leadership skills, while personally, it has deepened my empathy and understanding of diverse perspectives. The more people I meet, the more stories and lessons I learn about.

Dion DePina

Major: Special Education

Growing up with a younger brother with special needs and navigating life as a first-generation student, I saw firsthand the power of advocacy and support. My mission is to give back to those who are often overlooked, because putting a smile on a student's face and helping them find their voice is truly priceless. Praise the Lord for this calling! As I work to empower my students, I am constantly reminded of Michael Jackson's words: "Heal the world, make it a better place, for you and for me and the entire human race."

Tanjankia Haynes

Major: Social Work

Engaging with the community has positively impacted me academically, professionally, and personally by helping me connect what I learn in class to real-life situations, while also building important skills like communication, teamwork, and problem-solving. It has given me a clearer understanding of my career goals and how to work with diverse groups of people, while also helping me grow as a person by becoming more open-minded, compassionate, and aware of different life experiences. Overall, it has made me more confident, well-rounded, and prepared for both my future career and everyday life.

Nirvana Jefferson

Major: Chemistry

Melody Jenkins

Major: Psychology

Engaging with the community, I've witnessed how even a small act can create a meaningful impact for people. I truly believe that a simple change can help a community grow beyond what it might have been otherwise. And I truly do love helping others in any small way that can lead to a bigger impact for them.

Lynette Lawrence

Major: Early Childhood Education

Engaging with my community has really helped me grow in every area. Academically, it helps me connect what I'm learning in class to real-life situations, especially working with my students. It makes everything come together better because I actually see it in action every day. Professionally, it's helped me build my confidence, communicate better, and learn how to work with different people, including students, their families, and staff. Personally, it just feels good to know I'm making a difference. Building relationships with my students and their families gives me a real sense of purpose beyond just school or work.

Uzoechi Precious Nwadiaro

Major: Counseling Education

Organizing school events and participation in civic duties for public good. Organizing in student-led service clubs, organize community outreach/Hate Crime Vigil with Social works department, PFlag, Counselor Education, Chi Sigma Iota, AUM volunteer through Hands on River Region in Lasagna Loves (baked for families in Montgomery Area since), Fostering Excellence Productions at Davis Theater.

Mackenzie Powell

Major: Communication

Xsiah Walker

Major: Information Systems

Community-Engaged Faculty

Michelle Aitken, Lecturer

English and Philosophy

Continued work with the community has helped to greatly inform my pedagogy, allowing me to continue to grow and evolve alongside our students. It has also provided valuable connections that have enriched me in a deeply personal manner.

Dawneese Bowen, Assistant Clinical Professor

School of Nursing

Flor Breitman, Assistant Professor

Biology and Environmental Sciences

Kalia Cook, Clinical Coordinator/Assistant Clinical Professor

School of Nursing

Lee Farrow, Chair and Distinguished Research and Teaching Professor

History and World Cultures

Paul Fox, Senior Director and Clinical Assistant Professor

History and World Cultures and Warhawk Academic Success Center (WASC)

Community engagement has provided me with opportunities to understand our local needs and explore ways AUM can build partnerships to meet them.

Matt Grilliot, Associate Professor

Biology and Environmental Sciences

Katherine Irwin, Senior Lecturer

Communication and Theatre

I have always loved journalism and teaching communication because, at its best, it is connected to communities and is done with a genuine desire to serve others. It is about focusing on others, outside of our own lives, and how to effectively and ethically convey their stories so audiences can make informed decisions.

Tiffany Jackman, Assistant Professor

Business and Healthcare Administration

Engaging with the professional and local communities fosters collaboration, builds rapport, and strengthens the fabric of AUM's reputation as one of the best Regional Universities in the South. My role as the Director for Region 3 of the American College of Healthcare Executives (ACHE) Alabama Chapter and my work with Healthcare Information and Management Systems (HIMSS) keep me at the forefront of industry trends and connections. This ensures that my teaching contributions are grounded in current workforce demands, directly benefiting our students' competitive edge. Academically, these connections create vital pipelines for our students and future alumni in the local job market. This commitment to community-engaged scholarship is further evidenced by my service on the local School Advisory Council (SAC) and my work with the Philanthropic Education Organization (PEO), which raises scholarship funding and local charitable donations, further reinforcing my belief that education is a communal responsibility. Auburn University at Montgomery acts as a community anchor by creating valuable partnerships that foster a diverse, inclusive, student-centered culture through community collaboration.

Pia Knigge, Assistant Professor

Political Science and Public Administration

Chelsea Ward, Professor and Department Head

Biology and Environmental Sciences

Community-Engaged Staff

Jenn Bullock, Coordinator of Student Events

Student Affairs

Community engagement has shaped every part of my life. From childhood charity events with my family to volunteering with my son—ringing bells in endless blizzards, working fundraisers, and assembling care bags—I learned that service defines character. At the college, my community is made up of incredible students who teach me daily through simple acts of connection and listening. True engagement isn't about recognition; it's about consistent, humble efforts to uplift others. Whether personally or professionally, from the human in front of you to the kitten crying in the bushes, understanding and serving those who can't return your efforts with empathy and purpose is at the core of who I am and who I strive to be. Grace, mercy, and kindness are the currency of a meaningful life.

Tonya Dupree, Senior Director

Human Resources and Leadership

Carie-Firman Campbell, Administrative Associate

School of Nursing

Ar'Shundra Hampton, Bridge Program Manager

Warhawk Academic Success Center (WASC)

As I reflect on my life's journey, community engagement has always been at the heart of who I am. Growing up in a low-income neighborhood, I witnessed the challenges faced by the people around me and found joy in serving others—from engaging with elders in my community organization, to serving meals at a local homeless shelter, to packing and distributing food boxes at a food pantry. These experiences deepened my awareness of health disparities and inspired my academic path. As a result, I pursued a Bachelor's of Science in Biology and a Master's of Science in Nutrition with the goal of providing access to affordable healthcare and nutritious food to underserved communities. Professionally, the community service opportunities at AUM have been especially meaningful. Serving alongside faculty, staff, and students in communities similar to the one I come from is deeply rewarding, and it allows me to connect with students beyond the classroom while building rapport and a sense of belonging. Personally, I believe community engagement is not just something I do—it is who I am. It is a responsibility I carry

and a problem I have chosen to be part of the solution to. Service grounds me and reinforces why this work matters. Recently, while participating in the West Montgomery Community Cleanup Day, I initiated a conversation with a fellow volunteer and learned he was an AUM student completing service with a campus organization. That moment symbolized the collective impact we are making—not just as individuals, but as a university committed to service and community as a whole.

Katie Poundstone, Director of Conference Services

Facilities Planning and Operations

Mabs Seay, Career Advisor

Career Development Center

I have lived in Montgomery, Alabama most of my life, was briefly a student at AUM, and now have the privilege of working with AUM students as they wrestle with the big questions about who they are and where they're headed after graduation. Getting to work with them in that process has shaped me just as much as it has shaped them. This I believe, at its core, is what community is all about. I've been fortunate to be part of a wide range of community experiences that remind me how much we need each other. From singing with the Montgomery Chorale, to supporting programs across different churches and denominations, like Temple Beth Or, Church of the Ascension, and First United Methodist Church Montgomery, to more recently working with River Region Connects' career and resource fair and Hope Inspired Ministries' mock interview program, each space has taught me something new about connection, the importance of listening, and empathy. These experiences have impacted me not just professionally, but personally. They have shown me the power and importance of community, and how vital it is to making the lives of the people in that community safer, happier, and more satisfying.

Carmen Stephens, Student Conduct and Resource Coordinator

Student Affairs

Maria Thomas, Senior Program Associate

Housing and Residence Life

Molly Trammell, AUMTeach Advisor and Recruiter

College of Education and College of Sciences

AUM is a product of the amazing community that surrounds it. We serve students from the River Region and beyond, and I make it my personal mission to meet every student where they are and to help them find academic and personal fulfillment. The impact we have on our students is our lasting legacy, and I hope that mine is one of service, compassion, integrity, and support.

Community Partner Recognition

Alabama Shakespeare Festival

For decades, the Alabama Shakespeare Festival has supported Auburn University at Montgomery students, staff and faculty through internships, educational programming, professional development, creative research opportunities, and community engagement. This year they were vital in partnering with us to co-host the Region IV American College Theatre Festival in February. Mr. Gresham, ASF Artistic Director said, "Hosting the American College Theatre Festival aligns directly with ASF’s commitment to education and the development of young artists. Providing students and educators with meaningful learning experiences and access to professional theatre is central to our mission, and we’re honored to support the next generation of artists through ACTF."

Research and Creative Activity Abstracts

Assistant Principal Role in Teacher Retention in Secondary Schools in East Alabama

Presenter(s):
Demarius Baldwin (Instructional Leadership)

Faculty Mentor(s):
Tamela Thomas

Teacher retention is a significant challenge in secondary education, especially in schools where teachers face high instructional demands, student behavioral issues, and workplace stress. Although research often focuses on principals' impact on retention, the role of assistant principals has received less attention. Assistant principals provide direct administrative support and help shape the school climate and teacher experiences. This study examines how assistant principals support teacher retention in secondary schools in East Alabama. It explores how their leadership practices foster a professional environment where teachers feel supported, heard, and acknowledged. By analyzing teachers' perceptions of administrative support, communication, and recognition, the research aims to clarify how assistant principals affect teacher job satisfaction and commitment. The findings may offer educational leaders strategies to enhance teacher support and retention.

AI in Project Management

Presenter(s):
Aissatou Barry (Information Systems)

Faculty Mentor(s):
Lynn Stallings

Project management faces high failure rates due to gaps in training, communication, and overall support for project managers. Many are expected to deliver successful projects while managing complex responsibilities with limited guidance, leading to inefficiencies and financial loss. This research examines how artificial intelligence can act as a support tool in project management. By enhancing decision making, automating repetitive tasks, and identifying risks through data analysis, AI can function as a digital coworker to improve project performance.
While concerns about reliability, ethics, and return on investment remain, this study argues that a balanced approach combining AI support with human oversight can reduce project failure rates and improve overall efficiency.

From Lookup Tables to Learning: A New Era of Protein Alignment

Presenter(s):
Venu Sri Billakurthi (Computer Science)

Bhavana (Computer Science)

Faculty Mentor(s):
Sutanu Bhattacharya

Protein sequence alignment is a core task in bioinformatics used to identify structural, functional, and evolutionary relationships between protein sequences. Traditional alignment methods rely on substitution matrices such as BLOSUM62 to score amino acid similarities. These matrices assign fixed substitution values derived from evolutionary data, making them effective for sequences with moderate similarity. However, in the "twilight zone" -- where sequence identity is very low -- their rigid, observation-based scoring often fails to capture the complex relationships between residues, leading to inaccurate alignments. To address this limitation, we propose replacing BLOSUM62 with a cosine similarity-based measure derived from residue embeddings. In our approach, each amino acid is represented as a numerical vector in a high-dimensional feature space, and similarity between two residues is computed using cosine similarity between their vectors. Unlike fixed substitution matrices, our method is flexible and data-driven, enabling it to capture subtle, context-dependent relationships between amino acids that BLOSUM62 may overlook. We implement the proposed method within two standard alignment frameworks -- Needleman-Wunsch and Smith-Waterman -- and evaluate it on benchmark protein datasets. Compared against traditional BLOSUM62-based alignment, our cosine similarity approach demonstrates improved alignment accuracy in low-similarity regions, confirming its potential as an effective alternative scoring strategy for challenging alignment scenarios.

Developing Critical Thinking in Data Analytics Education: A Teaching Case Evaluating ChatGPT Responses to a Visualization

Presenter(s):
Nandini Bolekar (Management Information System)

Faculty Mentor(s):
Benjamin Larson and Jeffery Bohler

Data analytics education increasingly incorporates generative AI tools, yet AI output can be inconsistent or misleading. This teaching case develops critical thinking by challenging students to evaluate AI-generated interpretations of data visualizations through Robert Ennis' three dimensions: logical, criterial, and pragmatic. Using a wage-by-tenure visualization that subtly violates linear regression assumptions, students prompt ChatGPT with structured queries, assess responses, and refine their prompts while engaging in peer reflection. The case targets the Data Understanding phase of CRISP-DM, where students must determine whether relationships are linear or require feature engineering. Structured rubrics guide assessment of prompt engineering and reasoning. Designed for undergraduate analytics, MIS, and statistics

courses (adaptable to graduate programs), this case prepares students for AI-augmented workplaces by strengthening both technical skills and professional judgment in evaluating AI outputs. Supporting materials include complete datasets, sample deliverables, and validated implementation guides.

Comparison of Phenotypic Method Results for Staphylococcus aureus and Staphylococcus pseudintermedius

Presenter(s):
Megan Boswell (Medical Laboratory Science)

Faculty Mentor(s):
Li Qian

Staphylococcus aureus is a gram-positive, coagulase-positive bacterium commonly found on the skin and in the noses of about 30% of individuals. It is usually harmless but can cause infections ranging from mild skin issues to serious invasive disease. S. pseudintermedius is a normal commensal organism in dogs but can cause infections in both animals and humans. Its clinical importance is increasingly recognized due to frequent misidentification as S. aureus and the rising prevalence of methicillin-resistant strains (MRSP). The purpose of this project is to compare the phenotypic method results of S. aureus and S. pseudintermedius using S. aureus QC ATCC 29213, S. pseudintermedius QC ATCC 49444, and a patient's S. pseudintermedius isolate. Gram-staining, catalase testing, coagulase testing, culture morphology, ONPG, polymyxin B susceptibility, and PYR testing were performed on them. Both species appeared as Gram-positive cocci in clusters, produced catalase, and demonstrated coagulase activity. Colony morphologies of two species on sheep blood agar showed double-zone β-hemolytic. However, biochemical testing provided more discriminatory value. The ONPG test, PYR, and polymyxin B susceptibility demonstrated differences between the two species. These findings highlight the continued relevance of traditional phenotypic methods, particularly in resource-limited settings or as preliminary screening tools when advanced identification systems are unavailable.

Human-Centric AI: Designing Systems Where Humans Stay in Control Redefining the Balance of Power Between Humans and Machines

Presenter(s): *Faculty Mentor(s):*
Stanley Brown (Artificial Intelligence)

Human-Centered AI is frequently invoked as a guiding principle for responsible innovation, yet its operational meaning remains inconsistently defined. As artificial intelligence systems increasingly mediate high-stakes decisions across education, healthcare, enterprise operations, and public institutions, the central challenge is no longer simply technical performance. The deeper concern is whether authority and responsibility remain properly aligned within AI-mediated systems. This paper defines Human-Centered AI as the intentional alignment of intelligent system design and governance with human responsibility. While AI systems can optimize outcomes at unprecedented scale, they do not bear moral accountability for those outcomes. Human-Centered AI, therefore, requires that human beings retain authority over goal formation, system interpretation, intervention, and final decision-making. Drawing upon foundational Human-Computer Interaction theory — particularly the Action Cycle articulated by Don Norman — this paper argues that many contemporary AI systems unintentionally widen the gulfs of execution and evaluation. When users cannot clearly influence system behavior or meaningfully interpret probabilistic outputs, interaction breakdowns evolve into governance breakdowns. The resulting instability of trust — manifested in both over-reliance and unwarranted skepticism — is not merely behavioral; it is architectural. Existing risk management and compliance-based governance approaches are necessary but insufficient. They address procedural oversight without fully resolving structural misalignments between optimization and accountability. Sustainable AI adoption requires interaction-centered governance models that preserve user agency and maintain alignment between human responsibility and decision authority. Human-Centered AI ensures that while optimization may be automated, responsibility — and therefore authority — remains human.

A Student-Led Survey of Marine Biodiversity Across a Coastal Gradient at Dauphin Island

Presenter(s):
Rachel Brown (Biology)

Faculty Mentor(s):
Denise Stoeckel, Yener Ulus, Florencia Breitman, and Claudia Stein

Sarah Folmar, Jonah Martin, Khushali Bharat Panchal, Neha Sehar, Jade Zook (Biology) Cecilia Hamell (General Curriculum) Khushmandeep Kaur (Nursing)

Understanding how biodiversity changes across environmental gradients is important for studying coastal ecosystems. As part of a field experience at the Dauphin Island Sea Laboratory (AL, USA), AUM undergraduate students conducted an initial survey of marine communities in Mobile Bay. Sampling was carried out using a 15-minute otter trawl at two locations along a nearshore-to-offshore gradient: Pelican Bay and a Gulf site. Organisms were identified to the lowest possible taxonomic level, and we used species presence–absence data to compare community composition between the two sites using the Jaccard similarity index. In addition, we constructed a phylogenetic tree using the Open Tree of Life database to visualize evolutionary relationships among sampled taxa and patterns of community overlap between sites. We recorded a total of 27 species at the nearshore site and 17 at the offshore site. Of these, 9 species were shared between sites, while 18 were unique to Pelican Bay and 8 were unique to the Gulf. The Jaccard similarity coefficient was 0.257, indicating low similarity in species composition between sites. These findings suggest notable differences in marine communities across a short spatial gradient and provide a baseline for future data collection in Mobile Bay. This project highlights the value of hands-on field experiences in introducing undergraduate students to ecological research.

Ocean Genes: Discovering Substrates for Membrane Transporters in Ruegeria Pomeroyi

Presenter(s):
Emily Brown (Biology)

Faculty Mentor(s):
Florencia Breitman

Gracie Cash and Ronald James (Biology)
Cecilia Hamell (General Curriculum)

Carbon plays a central role in global climate regulation, particularly within marine environments where bacteria drive key processes in the carbon cycle. Carbon can be incorporated into biomass, can be sedimented at the bottom of the ocean, or can be in the atmosphere as CO2, making the Earth warmer along with other greenhouse gases. Studying the oceans is crucial because that's where half of the Earth's photosynthesis happens; and in particular studying bacteria in the ocean is of extreme importance because they drive key steps in the carbon cycle. Ruegeria pomeroyi is a well-established model organism for studying microbial metabolism due to its characterized genome and adaptability in laboratory settings. In this study we investigated the role of membrane transporters associated with central metabolism by analyzing mutant strains of R. pomeroyi with disruptions in genes of unknown and predicted function. Wild type (POOL) and mutant strains were grown in 96 well plates with various carbon sources relevant to central metabolic pathways. Optical Density (OD) measurements were collected before and after incubation at 28°C to assess growth and statistical significance. Colleagues from UGA have been researching this organism for more than 20 years, and have developed approximately 4,000 lines of mutants along with lab protocols for the discovery of genes that regulate metabolite uptake. In this work we describe the results of a Course-based Undergraduate Research Experience that was conducted in Spring 2026 at Auburn University at Montgomery. In this study, we grew approximately 20 mutant R. pomeroyi bacteria that have unique disruptions in transporter genes for which the substrate taken up by the transporter is unknown, on a variety of substrates. We performed t-tests to understand if growth was significantly different and we discussed results in light of available literature.

Prevalence of Walking or Biking to Work in the United States

Presenter(s):
JaNiyla Busby (Exercise Science)

Pruitt Hobbs (Kinesiology) Samantha Wheat (Biology)

Faculty Mentor(s):
Angela Russell

Purpose: The purpose of this study was to describe the overall prevalence of walking or biking to work in the United States and determine if the prevalence has changed in the last decade or varies by state. Methods: The data set "Nutrition, Physical Activity, and Obesity -- American Community Survey" was obtained from the Centers for Disease Control and Prevention under the Open Data Commons Open Database License: http://opendatacommons.org/licenses/odbl/1.0/. Percent of adults who usually biked or walked to work in the last week was reported for U.S. states and territories for the years 2010 to 2024, excluding the year 2020 as data was not collected that year due to COVID-19 disruptions. One-way ANOVA was performed to determine if percent of walkers/bikers varied by year, and again to determine if percent of walkers/bikers varied by state/territory. Results: From 2010 to 2024 an average of 3.56 ± 2.30 percent of people in the United States usually walked or biked to work. There was no difference by year in the percent of people who usually walked or biked to work during the time period examined ($F(13, 714) = .937$, $p=.514$). However, the percent of walkers and bikers did vary by state ($F(51, 676) = 248.377$, $p<.001$, $\eta 2 = .949$). Conclusion: The overall prevalence of walking or biking to work in the United States is quite low, with an average of less than 4 percent of adults each year between 2010 and 2024. While there were only slight variations in average prevalence of walkers/bikers between most states, the District of Columbia was an outlier with 15.79 ± 2.63 percent of adults usually walking or biking to work during the examined time period. Only seven other states had percentages above 5, while Alabama had the lowest percentage of people who walk or bike to work, with only 1.26 ± 0.11 percent of people reporting doing so. Given the health benefits of walking or biking to work and the current prevalence of disease related to obesity and sedentary lifestyle, more needs to be done to encourage Americans to commute by walking or biking rather than driving. Policymakers including city planners should give attention to the infrastructure needed to make active commuting more attractive and accessible to residents.

Why Did Georgia's Republican Senator Kelly Loeffler Lose Her 2020 Re-Election Bid?

Presenter(s):
Brian Caldwell (Political Science)

Faculty Mentor(s):
Andrew Cortell

The project explores why Republican Senator Kelly Loeffler lost her 2020 re-election bid in Georgia. The implications of voter turnout rates, presidential politics, and a pandemic shock on the electorate are examined.

Two Regimes, One Playbook

Presenter(s):
Riley Cannon (Secondary Education)

Faculty Mentor(s):
Lynn Stallings

This project examines how authoritarian leaders rise to power by comparing Adolf Hitler and Joseph Stalin. Although they represented opposing ideologies, Nazism and Soviet communism, both leaders followed similar paths to power. Using historical analysis, this study identifies key strategies, including exploiting periods of crisis, gaining popular support, eliminating political opposition, and using propaganda and fear to maintain control. The findings suggest that, despite ideological differences, authoritarian leaders often rely on a common set of methods to consolidate power. Understanding these patterns can help identify warning signs of authoritarianism in both historical and modern contexts.

Sugar-Sweetened Beverage Consumption and Perceptions Among University Students

Presenter(s):
Nakoda Carden (Pre-Nursing)

Faculty Mentor(s):
Lynn Stallings

Sugar-sweetened beverages (SSBs) are one of the leading sources of added sugar in the diets of university students. High intake of these beverages has been associated with negative health outcomes, including obesity, type 2 diabetes, and cardiovascular disease. Despite growing awareness of these issues, SSB consumption remains high among university populations. This literature review investigates university students' knowledge, perceptions, and intake of SSBs. Findings show a gap between knowledge and behavior. Many students are aware and acknowledge the health risks associated with SSBs, but this knowledge does not always lead to reduced consumption. Behavioral factors such as self-efficacy, accompanied by

environmental and economic factors such as cost, convenience, and accessibility, contribute to consumption patterns. Additionally, research suggests that high sugar consumption may impact cognitive and academic performance, presenting the importance of confronting this issue among the student population. The knowledge-behavior gap suggests that education, when unaccompanied, is not enough to effectively curb high consumption patterns. More effective approaches should combine strategies such as front-of-package (FOP) labeling and interventions that specify behavioral change. Approaching these factors may help improve dietary habits and overall health among university students.

BEA Festival of Media Arts 2026

Presenter(s):
Sofia Cerebuch (Communications)

Jennifer Tolbert (Communications)

Faculty Mentor(s):
Katherine Irwin

Due to a generous travel grant from the Experiential Education and Engagement Center, we, Jennifer Tolbert and Sofia Cerebuch, had the opportunity in April 2026 to attend the Broadcast Education Association (BEA) National conference in Las Vegas. And as RAB student scholars we participated in the NAB show convention and participated in mentor matchups, which was encouraging to meet with top executives in the radio and broadcast industry. Both of us also competed in this year's BEA Festival of Media Arts Student Competition in the PSA and documentary audio categories, so it was insightful to see the national winners. We will highlight some experiences attending conference discussions and interactive activities given by media experts and producers. BEA is an international academic organization that provides a forum for topics of mutual concern to academics and industry leaders. Over 2,600 professors, students and media professionals are BEA members.

Understanding Our Voice

Presenter(s):
JaKyra Chambers-Bryant (Communication Disorders)

Faculty Mentor(s):
Marianne Morgan

The research activity will dive into the topic of voice production. It will also review typical pathologies that can occur within the laryngeal region.

Juggling Multiple Roles: Predicting a Person's Role-Occupancy Heterogeneity by Using A.I. Ratings of Open-Ended Questionnaire Responses

Presenter(s):
Parker Chavez (Psychology)

Faculty Mentor(s):
Moses Rivera

This pre-registered study examined whether A.I.-generated ratings of linguistic features in open-ended questionnaire responses can predict each respondent's role-occupancy heterogeneity. OpenAI's GABRIEL Python package was used to rate the affective valence (−100 to +100) and affective arousal intensity (0 to 100) of open-ended questionnaire responses from 87 AUM students. Role-occupancy heterogeneity was operationalized as the Hill number of order 1, computed from reported weekly time spent in each of four roles: school, employed work, childcare, and other family responsibilities. Word-count was not associated with the Hill number, $r(85) = .078$, upper-tailed $p = .236$. Trait negative affectivity, measured via the I-PANAS-SF, showed the predicted negative association with affective valence, but not at conventional significance levels, $r(85) = -.130$, upper one-sided 95% confidence bound = .048, lower-tailed $p = .114$. Contrary to our hypotheses, scatterplots and model tests provided no evidence of an inverted-U relation between affective valence (as the predictor) and the Hill number, nor a U-shaped relation between affective arousal intensity (as the predictor) and the Hill number. Instead, results were more consistent with a negative linear relation: affective valence was marginally negatively correlated with the Hill number, $r(85) = -.175$, upper one-sided 95% confidence bound = .002, lower-tailed $p = .052$, and this pattern remained marginal after controlling for trait negative affectivity, $b = -8.569$, upper one-sided 95% confidence bound = 1.139, SE = 5.837, lower-tailed $p = .0729$. These findings tentatively suggest greater role-occupancy heterogeneity may be associated with more negative descriptions.

Evaluating Synthetic Data Sources for Spiral-Based Parkinson's Disease Classification

Presenter(s):
Parsharam Chinthalathadem (Computer Science)

Faculty Mentor(s):
Olcay Kursun

Parkinson's disease (PD) affects fine motor control and can be observed in handwriting tasks such as spiral drawing. Digitized spiral tests provide a non-invasive signal for distinguishing PD patients from healthy individuals, but available datasets are often limited in size. This work investigates whether synthetic data can improve model performance in such low-data settings. We consider multiple sources of synthetic spiral data. First, procedural spirals are generated using controlled variations that simulate motor impairments such as tremor, irregularity, and distortion. Second, generative AI tools are used to produce spiral images based on descriptive

prompts. Third, additional spirals are created through manual drawing to mimic Parkinsonian patterns without requiring new clinical data collection. These datasets are used to pretrain and augment neural network models, which are then evaluated on real spiral data collected using a graphics tablet. The study compares models trained on real data alone with those incorporating different types of synthetic data, and analyzes which forms of variation provide the greatest benefit. Results are reported in terms of classification accuracy and robustness under limited training data. The goal is to assess the practical value of synthetic data for improving learning in small biomedical datasets for non-invasive PD screening.

Oral Feeding Difficulties in Preterm Infants

Presenter(s):
Jamie Collier (Communication Disorders)

Faculty Mentor(s):
Juanita Lloyd

This research presentation focuses on oral feeding difficulties in preterm infants and how premature birth impacts early development, particularly feeding, swallowing, and later speech and language outcomes. A major concern is oral-motor discoordination, which affects the infant's ability to coordinate sucking, swallowing, and breathing, often leading to unsafe or inefficient oral feeding. The presentation also discusses the treatment approaches that aim to support the development of safe and efficient feeding skills.

Improving Obesity Management Outcomes Integrating a Standardized Workflow and Structured Patient Education in a Weight Management Clinic

Presenter(s):
Kalia Cook (Nursing)

Faculty Mentor(s):
Courtney Cochran

Background: Obesity remains a leading public health concern in the United States, affecting more than 40% of adults and serving as a risk factor for type 2 diabetes, cardiovascular disease, and premature mortality. Despite advancements in pharmacologic therapy like glucagon-like peptide-1 receptor agonists (GLP-1 RAs), weight management success often remains limited by inadequate patient education and varying clinical workflows. This quality improvement project evaluated the impact of integrating a standardized workflow and structured patient education on obesity management outcomes among adults prescribed GLP-1 RAs at a selected weight management clinic. Methods: A pre-test/post-test design was implemented over nine weeks with patients aged 22-55 who were actively receiving GLP-1 RA pharmacotherapy. The intervention included a Weight Management Workflow Decision Tool and a Lifestyle Modification and Medication Awareness Survey used during each patient

visit to standardize care, guide medication titration, and evaluate behavioral readiness. Data collected included biometric measures (BMI, weight, blood pressure, blood glucose) and behavioral indicators (healthy habits and knowledge scores). Results: A total of 86 patients (n = 86) completed baseline and follow-up measures. Patients had a baseline means weight of 232.9-pound, Additional scores were 127.3 mmHg systolic and 80.9 mmHg diastolic blood pressure, 102.4 mg/dL blood glucose, and a knowledge score of 77.9%. Post-intervention, BMI ($p = .044$), and weight showed a statistically significant reduction despite a mean return value of 233.6 pounds ($t = -2.012$, $p = .047$). Patient knowledge increased significantly to 97.5% ($t = -11.463$, $p < .001$), and healthy habits scores increased ($p = .001$). Conclusions: Findings indicate that standardized, educational workflows can enhance clinical and behavioral outcomes in obesity management. Additionally, improved patient knowledge and engagement are foundational to physiological improvements, reinforcing nurse-led roles in designing and sustaining evidence-based, patient-centered care models.

The Power of Simplicity: How Apple Perfected Minimalist Design

Presenter(s):
Chance Cook (Art)

Faculty Mentor(s):
Lynn Stallings

Minimalism, an artistic approach that relies on the clarity of things, has become an increasingly influential design philosophy in modern branding and product development, especially within avenues, such as the technology industry. This study that is being presented examines how Apple Inc. has utilized minimalist designing principles to shape its brand identity and contribute to the growing popularity of minimalism in contemporary design culture over the past couple decades. Using a graphic design literary approach, this study analyzes academic literature on minimalist design, consumer psychology, and Apple's design philosophy to understand how simplicity functions within corporate branding strategies. In these findings, it has been suggested that minimalistic design enhances things such as usability, improvement of consumer perception of quality, strengthening of the brand recognition through visual clarity and consistency. Regarding Apple Inc., these results indicate that their implementation of minimalism through their design teams is not merely aesthetic but also strategic, influencing consumer behavior and reinforcing the company's premium, and yet simple, brand image. Understanding the role of minimalism in Apple's design approach is essential because it provides insight into how simplicity can serve as an effective tool in modern visual communication, product development, and most importantly, how that can be effectively translated to the consumers.

Antibacterial Activity of Whole-Cell and Cell-Free Culture Supernatant of a Paenibacillus Species C21

Presenter(s):
Cameren Cunningham (Biochemistry and Molecular Biology)

Adrian Lewis (Biochemistry and Molecular Biology)

Faculty Mentor(s):
Benedict Okeke

The discovery of antibiotics has been a major development in the treatment of microbial diseases. However, the increasing resistance of microbes to antibiotics is a serious public health problem. Antibiotics include natural microbial products, and other synthetic products that inhibit or inactive microbes. Natural evolution in soil environments can lead to the emergence of unique antibiotic-producing microbial strains. Thus, in this study, we screened microbes isolated from soil environments for antibacterial activity on both Gram-positive and Gram-negative bacteria. One isolate was identified by 16s rRNA gene sequence analysis as Paenibacillus species C21 (99% identical to Paenibacillus polymyxa). The whole cells of Paenibacillus species C21 displayed antibacterial activity against both Staphylococcus aureus (Gram-positive) and Citrobacter freundii (Gram-negitive). Whereas cell-free culture supernatant of Paenibacillus species C21 displayed antibacterial activity on Citrobacter freundii. Preliminary evaluation indicated that the antibiotic substance in the cell-free culture supernatant of Paenibacillus species C21 is sensitive to trypsin.

Abbey Road: Inspiration to Be Yourself and Your Ideas

Presenter(s):
Ngoc Bao Tran Dang (Pre-Nursing)

Faculty Mentor(s):
Katherine Shannon Howard

This research essay explores the enduring cultural and technical impact of Abbey Road, examining how a single recording space — and the 1969 Beatles album that bears its name — pioneered in technological advances in producing albums. While often viewed through a lens of 1960s nostalgia, this study argues that Abbey Road's influence is a living force that continues to shape both genres and the of younger generations in different aspects.

CS-Bot@AUM: An AI Assistant for Student Support

Presenter(s):
Shivaram Danwada (Computer Science)

Faculty Mentor(s):
Sutanu Bhattacharya

CS-Bot@AUM is an AI-powered academic assistant designed to support students in both learning and early-stage research. The goal of this project is to help students move beyond simply understanding course material to being able to apply it in projects and research contexts. The system uses a retrieval-augmented generation (RAG) framework to provide responses that are grounded in relevant academic content rather than generic outputs. The assistant retrieves information from curated university resources and student provided materials such as notes, lab documents, and research papers. These materials are embedded using MiniLM and indexed with FAISS for efficient semantic search. At query time, the most relevant content is retrieved and used by a language model to generate concise, context-aware responses. The system also maintains short conversational memory to handle follow-up questions while reducing irrelevant context retrieval. In addition to answering questions, CS-Bot@AUM allows students to upload their own materials for personalized learning, generate practice questions for self-assessment, and explore research conducted at AUM through past symposium data. By making both academic content and research more accessible, the system supports inclusive, on demand learning and helps students take their first steps toward research engagement.

Regionalization after USMCA: Evidence from North American Auto Trade Flows

Presenter(s):
Dylan Davis (Economics)

Faculty Mentor(s):
Agnitra Roy Choudhury

This project examines the United States-Mexico-Canada-Agreement (USMCA)--an update to NAFTA--and measures its effects on vehicular trade flows in North America. I use bilateral product-level trade data and Poisson pseudo-maximum-likelihood estimation in a difference-in-difference models to test whether USMCA's stricter automotive rules of origin shifted finished-vehicle trade toward North America. The analysis focuses on passenger vehicles and commercial vehicles, comparing North American trade with non-North American trade within each product and then estimating post-USMCA changes in total imports and exports for each country. The results point to a sharp divergence across vehicle types. For passenger vehicles, there is little evidence of a strong increase in North American trade regionalization, but there is clear evidence of weaker overall export performance after USMCA went into effect: total passenger-vehicle exports fall by about 44 percent for Canada and about 15 percent for the United States. By contrast, commercial vehicles perform more strongly overall, with significant gains in U.S. commercial-vehicle imports and exports and in Mexican commercial-vehicle exports. These findings suggest that USMCA did not generate a uniform regionalization of finished-vehicle trade; instead, post-USMCA adjustment appears to have been much weaker for passenger vehicles than for commercial vehicles.

Disseminating Culturally Diverse HPV Education Through University Partnerships

Presenter(s):
Ashley D'Elia (Nursing)

Faculty Mentor(s):
Courtney Cochran

Background: Human papillomavirus (HPV) remains a leading cause of preventable cancers, particularly in rural populations. This project examined whether, among a convenience sample of undergraduate students at a rural university, a standardized HPV educational intervention, compared with baseline status prior to the intervention, would improve HPV health literacy, beliefs, and attitudes toward vaccination from pre-intervention to immediate post-intervention. College-aged students represent a high-priority group for targeted education due to increased exposure risk, inconsistent health literacy, and gaps in vaccination awareness. Methods: A pooled pre–post convenience sample design was utilized with a final analytic sample of n = 61 undergraduate students who completed both surveys. Baseline demographic characteristics, HPV health literacy, and attitudes and beliefs were assessed prior to the intervention and reassessed immediately following the educational session. Data were analyzed using IBM SPSS. Paired-samples t tests evaluated overall changes in literacy and attitudes, McNemar tests assessed item-level knowledge changes, and Cronbach's alpha was calculated to

determine internal consistency of the attitudes and beliefs scale. Effect size was measured using Cohen's d and Hedges' g. Results: Baseline findings revealed inconsistent HPV health literacy, particularly regarding prevalence, asymptomatic infection, and transmission, despite moderately favorable attitudes toward vaccination and high perceived decision-making control. Following the educational intervention, statistically significant improvements were observed in overall HPV literacy, with the largest gains in recognition that HPV is common, often asymptomatic, transmissible beyond genital contact, and not fully prevented by condom use. Attitudes and beliefs were also strengthened post-intervention, including increased perceived susceptibility, enhanced confidence in vaccine safety, improved perceived social support, and greater willingness to recommend vaccination. Conclusions: A brief, structured HPV educational intervention significantly improved health literacy and reinforced positive vaccination attitudes among rural college students. These findings support the integration of targeted educational strategies within university and primary care settings to enhance informed decision-making and promote cancer prevention.

Why Did Barack Obama Win Indiana in the 2008 Presidential Election?

Presenter(s):
Jayden Doyle (Political Science)

Faculty Mentor(s):
Andrew Cortell

This project looks at why Barack Obama won Indiana in the 2008 presidential election even though the state had not voted Democratic in decades. It focuses on three main reasons which are the economy and presidential approval, the number of campaign field offices, and the number of campaign appearances. The goal is to figure out which of these explanations best explains Obama's win by comparing these factors between him and John McCain.

Morphological Trait Differences of Japanese Climbing Fern Between Its Native and Invasive Range

Presenter(s):
Kayin Dunn (Biology)

Madison Young (Biology)

Faculty Mentor(s):
Claudia Stein

Non-native invasive plant species out-compete native organisms, reducing biodiversity and altering the abiotic environment, causing environmental and/or economic damage in their introduced ranges. Morphological traits like plant size or leaf area influence the fitness of a plant. Assessing trait differences of species in their native and exotic ranges can help identify underlying mechanisms that might allow a species to become invasive in novel environments. As a course-based undergraduate research experience during Botany class, we used digitized natural history collections to investigate whether internode length and leaf area of Lygodium japonicum differ in their invaded range compared to their native range. Lygodium japonicum, commonly known as climbing fern, is vine-like fern that is native to Eastern Asia and invasive in the southeastern US. Our results showed that internode length was significantly higher in its exotic range compared to its native range, while we found no differences in apical leaf area. Having longer internodes in the introduced ranges might indicate rapid adaptation to the new environment, or lower competition or lower herbivore pressure in the invasive range allowing the plant to invest more in plant growth and less in defense.

Alcohol Taxes and Tax Revenue

Presenter(s):
James Easley (Economics)

Faculty Mentor(s):
Agnitra Roy Choudhury

This study evaluates the relationship between beer and wine taxes on tax revenue. I analyzed this relationship between ABC and non-ABC states, controlling for macro-economic factors such as state income and unemployment rates.

Global Advocacy: Youth Speech & Hearing Services

Presenter(s):
Jenesis Foster (Communication Disorders)

Faculty Mentor(s):
Renee Fulford

A glance into past, present, and future efforts to provide services for youth speech & hearing disorders on a global scale.

Feedback & Immersion: Comparative Outcomes of Coaching and Virtual Modalities in Public Speaking Confidence

Presenter(s):
Sushma Garaka (Management Information Systems)

Ichhya Shrestha and Lakshmi Naga Sr Pamarthi (Management Information Systems)

Faculty Mentor(s):
Jeffrey Bohler and Benjamin Larson

This study examines the effectiveness of three distinct training approaches—professional coaching, immersive virtual reality (VR), and screen-based artificial intelligence (AI) practice—in improving public speaking confidence among university students. Using a randomized controlled design, 76–200 students at Auburn University at Montgomery are assigned to one of four groups: coaching, VR, screen-based AI, or a control condition. Participants in the active conditions complete eight hours of structured training over four weeks. Pre- and post-intervention assessments measure communication anxiety using the Personal Report of Communication Apprehension Scale (PRCS) and self-efficacy. Data collection is currently underway (March 31–April 24, 2026). It is anticipated that all three training modalities will produce significant improvements in confidence and self-efficacy compared to the control group. Additionally, VR and screen-based AI conditions are expected to yield comparable outcomes due to their shared curriculum, providing insight into whether immersive technology offers added value beyond standard digital platforms. Professional coaching serves as a benchmark for human-guided instruction. Findings from this study will contribute to evidence-based decisions regarding scalable communication training in higher education. If AI-based approaches demonstrate comparable effectiveness to traditional coaching, they may offer a cost-efficient and scalable solution for developing essential communication skills among students.

Content Analysis of Consulting and Financial Statements to Identify Agentic AI Governance Risk, Challenges and Response.

Presenter(s):
Sushma Garaka (Management Information Systems)

Faculty Mentor(s):
Benjamin Larson

The aim of this research is to explore trends in Artificial Intelligence (AI) governance (AIG) and quality assurance (QA) within Agentic AI systems in enterprise environments. It focuses on using academic frameworks to determine expected risks and then using content analysis of public documents from consulting and AI firms to identify any additional challenges, risks, concerns, or responses considered in the industry but not in academia, or risks that are not being widely addressed in the industry. The study evaluates the use of AI agents to help explore the content of public documents. It aims to identify potential gaps in risk management in poor agentic AIG or QA, as well as to evaluate trends in risk mitigation. Agentic AI enables autonomous decision-making and task execution with minimal human input. Its rapid adoption brings benefits but also risks like bias, safety issues, and a lack of accountability. Traditional Quality QA methods are insufficient for these dynamic systems, necessitating improved QA and governance approaches as well as continuous evaluation of new risks. To guide the development of the research framework, a comprehensive literature review on Agentic AI, Quality Assurance, and AI governance was conducted to identify key risks, challenges, and best practices. We identified 13 risks that the industry needed to address. The risks were Cybersecurity & Data Privacy Risk, AI & Technology Risk, Data Governance & Quality Risk, Regulatory & Compliance risk, Operational & strategic risk, Safety risk, Economic Impact Risk, Accountability Challenges risk, Ethical Concerns risk, Privacy Issue Risk, Skill Transformation risk, Institutional Policy risk, Safety risk and Bias Against Human Values, Unpredictable and Unsafe Behavior, Scalability and Resource Constraints, Privacy and Security Risks, Reliability and Robustness Issues, Lack of Standardization, Data Quality and Bias Issues, Ethical and Legal Considerations, Goal Alignment Problem, Handling Dynamic Environments, High Computational Requirements, Regulatory Complexity, Governance Restrictions on Modeling. To evaluate industry response, we used publicly available reports and financial statements to form two corpora representing the Big 4 Consulting Firms and AI-related companies. The corpora were analyzed using agents created within Microsoft Co-Pilot and were also reviewed by the researcher for accuracy. The agents were asked questions about the identified risks to connect them to the industry response. The responses were evaluated for accuracy and completeness. The agents were also asked to identify additional sources of risk and challenges not included in the industry's identification. Finally, the agents were also asked about spending related to quality assurance and AI Governance. In identifying matching concepts, we may better inform how the concepts have been operationalized, and by identifying concepts that do not match, we may identify gaps in academic concepts or potentially a lack of industry response. We also aim to provide additional details of how the industry is responding to risks and challenges. This study's preliminary findings suggest that the industry is using the equivalent of multiple risk models. This led to an additional literature review and the inclusion of more studies. Additional details on the industry's response to

governance risks were compiled and summarized. Companies in our corpus project a rise in spending and hiring in governance and quality control related to Agentic AI, and there is a rising risk and challenges that talent gaps may appear. This indicates that there needs to be dedicated education to prepare students and employees for AIG and QA

Analysis of Bacterial Colonies on Solid Media Using Deep Learning and Transfer Learning

Presenter(s):
Abria Gates (Computer Science)

Sandeep Medepalli (Computer Science)

Faculty Mentor(s):
Benedict Okeke and Olcay Kursun

Pathogenic bacterial contamination of water poses a severe public health risk, particularly in settings with limited laboratory resources. We propose a two-stage AI pipeline for automated detection and classification of coliform colonies on agar plates. In the first stage, a YOLOv8-based detector localizes colonies on full-plate images, eliminating the need for manual annotation. In the second stage, detected colonies are classified using a convolutional neural network (CNN) trained via transfer learning, where models are pretrained on a diverse public bacterial colony dataset and subsequently fine-tuned on coliform-specific classification tasks. Across both in-house and public datasets, transfer learning consistently improves classification performance relative to training from scratch. The complete pipeline processes each plate in under five seconds and outperforms classical feature-based baselines. These results demonstrate the potential of a modular, low-cost AI framework for scalable and accessible microbiological analysis, with future work targeting color-aware models and on-device inference for field deployment.

Beyond the Textbook: Examining the Impact of Digital Integration on Historical Reasoning and Engagement in 10th-Grade Social Studies

Presenter(s):
Dominique Gibson (Secondary Education)

Faculty Mentor(s):
Lei Wang

This study examines the integration of digital tools in secondary history instruction to enhance student learning outcomes in the study of the American Revolution. Grounded in experiential and technology-driven pedagogical frameworks, the investigation explored how platforms including Google Docs, Edpuzzle, Padlet, and TimelineJS supported 10th-grade students'

analysis of key revolutionary events, influential leaders, and Enlightenment ideas foundational to the Declaration of Independence. Through collaborative and self-directed learning activities, students constructed multimedia artifacts, engaged in perspective-taking discussions centering the experiences of women, African Americans, and American Indians, and synthesized chronological reasoning through interactive timelines. Assessment incorporated both formative and summative measures of comprehension, critical thinking, and historical reasoning. Findings suggest that purposeful digital integration fosters deeper engagement, higher-order thinking, and collaborative knowledge construction, while bridging disciplinary content with 21st-century competencies. Implications are discussed for instructional design in secondary social studies contexts, particularly regarding the role of technology in advancing historical literacy, creativity, and digital citizenship.

English Capstone Project

Presenter(s):
Ian Glass (English)

Faculty Mentor(s):
Heather Witcher

In this presentation, I will argue that The String of Pearls critiques Victorian capitalism by highlighting how seemingly ordinary places of commerce rely on the concealment of exploitation and violence in order to function. Traditional scholarly discourse on the novel has focused primarily on its elements of murder and cannibalism, citing them as the primary source of horror. This project shifts attention away from this idea and toward the economic structures that make these malicious tasks possible, arguing that the true horror in the text comes from these economic elements. Rather than treating Sweeney Todd and Mrs. Lovett as isolated perpetrators of brutality and violence, this essay interprets their businesses as representations of larger faults in the system of Victorian capitalism. Drawing particularly on the Marxist concepts of exploitation and commodity fetishism, in this essay I will demonstrate how the work reflects a system in which human labor and human bodies themselves are transformed into commodities for consumption and profit while the conditions that create them remain hidden and ordinary on the surface. Ultimately, I seek to contribute to existing scholarship by reframing the horror elements of the novel as structural rather than merely sensational, bringing light to a deeper anxiety that Victorian capitalist systems relied on the suppression of exploitation in order to maintain the appearance of a normal economic society.

Am I Enough?: Confronting Imposter Syndrome in the BSW Experience

Presenter(s):
Jennifer Grant (Social Work)

Shannon King-Jackson and Jamesha Bennett (Social Work)

Faculty Mentor(s):
Angie Smith

Imposter syndrome is prevalent among BSW students, manifesting as self-doubt and fear of inadequacy in academic and internship settings. Rooted in early experiences and societal pressures, it impacts confidence and professional identity. Educators play a key role in fostering resilience through open dialogue, support, and strategies that promote a sense of belonging.

Preliminary Effects of Structured Physical Activity with Project-Based Learning on Disruptive Behavior and Defiance by Elementary Students with Disabilities

Presenter(s):
Rebecca Gray (Special Education)

Faculty Mentor(s):
Sara Bicard and Kate Simmons

Research has shown positive effects of movement integration on classroom functioning for children with autism but has not focused on students with other disabilities. This study addressed gaps in existing research by examining the effects of combining structured physical activity with project-based learning (PBL) on reducing disruptive behaviors among elementary students receiving special education services. Three participants who were 7-9 years olds were diagnosed with autism, all of whom had documented histories of noncompliance, emotional outbursts, and transition difficulties ("crying, yelling, stomping, throwing objects, hitting desk"). A multiple-baseline design across behaviors design was used to investigate the effects of prompted structured physical movement activities from BrainPump (Reilly & Higginbotham, 2022) during Project-Based Learning tasks. These tasks were designed to create "teachable moments" for emotional regulation of outbursts, non-compliance, and transition between activities. Across four themed project weeks, students engaged in hands-on activities while receiving in-the-moment guidance to identify emotions and apply movement-based calming strategies. Frequency counts of target behaviors, general education teacher ratings, classroom observations, and social validity surveys were used to determine changes in the target behaviors. Although in general noncompliance, outbursts, and transition difficulties remained at similar levels between baseline and intervention conditions, there was an increase in appropriate behaviors such as compliance, expressing feelings, and engagement.

Geological Role of the Invasive Joro Spider

Presenter(s):
Seth Grogan (Environmental Science)

Faculty Mentor(s):
Lynn Stallings

Joro spiders are an invasive species that have been present in the southeast United States since their introduction to Georgia around 2014. As this species' population and extent grows in the coming years, I researched how the Joro spider interacts with its newfound environment to explain how it affects North American ecosystems. In this presentation, an evaluation of the recent literature regarding Joro spiders in Georgia — such as their temperature tolerance, feeding habits, population growth, and habitats — will create an understanding of the ecological role these spiders will occupy and identify potential areas of future research to achieve that goal.

English Capstone Project

Presenter(s):
Iris Guin (English)

Faculty Mentor(s):
Heather Witcher

This chapbook is a means to explore the erosion of identity, creativity, originality, and the natural world through poetry shaped by the language and structures of digital systems. Written through a combination fragments of code and experimental free verse, the poems follow a recurring "user" navigating familiar online spaces while gradually witnessing both their own sense of self and their surrounding environment diminish. Drawing on programming logic, such as conditional loops, conditional statements, binary structures, and randomized scattered code altogether, the poems reflect the mechanics of scrolling feeds, targeted advertising, user agreements, and generative AI. These tech-inspired forms are the aesthetic framework and subject matter in order to emphasize how digital spaces and "rituals" shape our perceptions and behaviors towards ourselves and the outer world.

Managing Recurrent Urinary Tract Infections in the Emergency Department

Presenter(s):
Hayley Guthrie (Nursing)

Faculty Mentor(s):
Courtney Cochran

Background: Recurrent urinary tract infections (rUTIs) are a common cause of emergency department (ED) visits and contribute to inconsistent antibiotic prescribing, poor documentation, and increased antimicrobial resistance. Despite established guidelines, adherence remains suboptimal. The PICOT question guiding this project was: In adult female ED patients with rUTIs (P), how does implementation of an evidence-based treatment algorithm (I), compared to usual care (C), affect guideline adherence, antibiotic selection, and documentation accuracy (O) over 12 weeks (T)? The project aimed to achieve ≥85% compliance with guideline-based care. Methods: An evidence-based rUTI treatment algorithm, developed using current guidelines and local antibiogram data, was implemented in a high-volume ED in the southeastern United States. Provider education and algorithm accessibility supported integration of the algorithm into workflow. A retrospective chart review of ED encounters from October–December 2025 was conducted. Of the 309 charts screened, 55 met inclusion criteria. Data were abstracted using a standardized tool and analyzed using descriptive statistics. Results: The final sample (n = 55) had a mean age of 57.7 years. Algorithm compliance was achieved in 74.5% of encounters. Documentation consistency improved, with increased alignment between "history of present illness and Review of systems" HPI/ROS alignment present in 74.5% and physical exam consistency in 80% of cases. (Ceftriaxone (n = 22) was the most frequently prescribed antibiotic, followed by cephalexin (n = 15) and cefpodoxime (n = 6). Escherichia coli was the most common pathogen (n = 13))? Notably, 20% of patients did not have a urine culture obtained. The ED admission rate was 45.5%. Conclusions: Implementation of an evidence-based algorithm improved standardization of care, antibiotic stewardship, and documentation practices in the ED. While the target compliance rate of 85% was not achieved, findings demonstrate meaningful clinical improvement. This project advances systems-based practice by translating evidence into sustainable clinical processes that improve patient outcomes and reduce antimicrobial resistance.

How Artificial Intelligence is Affecting Software Development

Presenter(s):
Jack Harrell (Mathematics)

Faculty Mentor(s):
Lynn Stallings

Artificial Intelligence (AI) is rapidly shaping the software development industry by improving efficiency, security, and collaboration between professionals. This research project looks at multiple qualitative and quantitative studies about AI and how it affects software development. The main findings in this project suggest that while AI is a very useful tool to software developers, it is not developed enough to replace them but rather transform their roles. Recent research suggests that AI can outperform humans in smaller, easier code but not complex code which still requires human correction. It can make programing easier, but it can also create errors and produce insecure code that is logically flawed. Viewpoints vary: While some people highlight the advantages of Artificial Intelligence, other professionals show some concerns. Other studies show skill gaps and ethical concerns as well as certain "hallucinations" Artificial Intelligence can produce. Overall, AI is very effective at making programming easier along with securing code, but there are a few challenges that AI appears to have, making it a significant resource for software development instead of a replacement.

Bridging the Digital Divide to Reduce Sentinel Events in Underserved Populations

Presenter(s):
Myrna Rose Henry (Nursing)

Faculty Mentor(s):
Kecia Williams

The digital divide presents a major challenge to healthcare safety, particularly for rural populations, older adults, and individuals with lower socioeconomic status who often lack access to broadband, digital devices, and technological literacy. This project explores whether limited digital access increases the risk of sentinel events—serious patient safety incidents resulting in death or severe harm—and identifies strategies to reduce these outcomes. Literature findings link digital exclusion to delayed treatment, poor care coordination, and adverse health outcomes. A case study of a 72-year-old patient with congestive heart failure illustrates how the absence of telehealth and remote monitoring contributed to delayed intervention and clinical deterioration. Using the Iowa Model of Evidence-Based Practice and the Plan-Do-Study-Act framework, the project proposes interventions such as expanding broadband access, providing low-cost devices, implementing community health worker-led digital education, and integrating telehealth into routine care. Promoting digital equity can enhance early intervention, improve patient engagement, and reduce preventable sentinel events, ultimately strengthening patient safety among vulnerable populations.

Relationship between Gender and Effects of Aggressive Behaviors on Soccer Referee Concentration, Motivation, and Performance

Presenter(s):
Pruitt Hobbs (Kinesiology)

JaNiyla Busby (Kinesiology) and Samantha Wheat (Biology)

Faculty Mentor(s):
Angela Russell

Purpose: The purpose of this study was to examine the relationship between soccer referees' gender and the effects of aggressive behaviors by athletes, coaches, and spectators. Methods: Current soccer referees from three regional Soccer Officials Associations were invited to complete a survey. Study participants (N = 212; male = 178, female = 34) answered nine questions to report the effects of aggressive behavior from soccer players, spectators, and coaches on their concentration, performance, and motivation. Participants rated how aggression affected them by answering on a scale of 0 to 4 with 0 being "not at all" and 4 being "very much." Data was further condensed for analysis by grouping questions to form six components: concentration, performance, motivation, soccer players, coaches/trainers, and spectators. Participant scores for each component were calculated by adding together their ratings for each of the relevant component questions. One-way ANOVA was performed to determine if there were differences in component scores by gender, and effect sizes were calculated for significant relationships. Results: Component scores varied by gender for concentration, performance, motivation, coaches/trainers, and spectators ($p < 0.05$). There were no differences in perceived aggression by gender for the component of soccer players ($p=.258$). Conclusion: For the components of concentration, performance, motivation, coaches/trainers, and spectators, female participants had higher mean scores compared to male participants, with higher scores indicating a greater effect of aggression on that component. In contrast, there was no difference by gender in the effects of aggression by soccer players on the concentration, performance, or motivation of soccer referees. While most effect sizes were small, the spectator component had a medium effect size. It appears that female soccer referees experience greater effects from the aggressive behaviors of coaches, trainers, and spectators compared to their male counterparts, with aggression by spectators having a stronger impact compared to coaches and trainers. Officiating organizations should review their policies on abuse prevention and ensure both male and female referees are being protected. It is not clear from this study if female referees experience a greater frequency of aggression from coaches, trainers, and spectators, which could explain their reports of experiencing greater impact compared to their male colleagues. Future studies should examine the frequency and severity of aggression directed toward referees to determine if there are differences based on gender that could account for the difference in perceptions reported in this study.

Why Has Prime Minister Viktor Orbán Been Able to Reduce the Powers of the Judiciary During His Second Term in Office?

Presenter(s):
Leah Jessup (Political Science)

Faculty Mentor(s):
Andrew Cortell

This research project investigates the political and economic conditions that allowed Prime Minister Viktor Orbán to systematically reduce judicial independence in Hungary following his 2010 landslide victory. Using a correlation analysis of electoral data and constitutional reforms, the study evaluates three competing explanations: external international pressure, the pre-existing structure of the courts, and the insurance theory of political competition. The findings demonstrate that Fidesz's supermajority removed the need for independent courts as political insurance, proving that domestic political security can effectively override both institutional watchdogs and external diplomatic pressure.

Frequency and Treatment of ACL Injuries in Military Personnel

Presenter(s):
Emmanuel Jones (Kinesiology)

Faculty Mentor(s):
Angela Russell

Purpose: The purpose of this review was to examine the frequency of ACL injuries in military personnel and describe common physical therapy treatment strategies. Methods: A search of the literature was conducted using combinations of the keywords "ACL injuries," "physical therapy," "military injuries," "military," "ACL military injuries," and "injury frequency." Searches were conducted using PubMed and Google Scholar. Results were restricted to full-text articles published within the last 10 years. Results: Google Scholar and PubMed would produce many results. By using the keywords and filters Google Scholar and PubMed would produce 20 useful articles towards research. Google Scholar produced over 1,000 results that met the search filters and PubMed would produce 84 to over 1,000 relevant results. Conclusion: Based on this information, it appears that ACL injuries are very frequent injuries not only on the playing field but also on the battlefield. The treatment of this particular injury by a physical therapist follows a similar pattern that involves stability training and muscle strength training. Depending on the severity, this same pattern would be used in the military. If the injury is severe and requires surgery, then the best way to improve treatment outcomes would be by means of ACL augmentation, a procedure that reinforces the ligament by means of suture tape.

Paradigm Shifts in African American Identity: A Kuhnian Analysis

Presenter(s):
Aaralyn Kang (Interdisciplinary Studies)

Faculty Mentor(s):
Bridgette Harper

This presentation applies Thomas Kuhn's theory of paradigm shifts to the evolving construction of African American identity. Drawing on the framework outlined in The Structure of Scientific Revolutions, this conceptual study interprets identity formation as a dynamic process distinctively shaped by in-group and out-group influences. It dissects the impact of key historical moments — such as Reconstruction, the Harlem Renaissance, and the Civil Rights Movement — within the paradigm framework to refine the collective understanding of identity within the context of social, political, and cultural shifts. By framing these transitions through a Kuhnian lens, this presentation demonstrates that African American identity is not fixed but continually renegotiated, aligning with established interdisciplinary theories that understand identity as fluid, dynamic, and evolving across diverse contexts. Ultimately, this analysis offers a conceptual bridge between the philosophy of science and cultural studies, emphasizing the power of paradigm shifts in shaping identity over time.

Describe and Discuss Fusion Centers, Why They Were Established and Why They Are Essential

Presenter(s):
Joseph Kapinos (Homeland Security and Emergency Management)

Faculty Mentor(s):
Joe Davis

The terrorist attacks of September 11, 2001 exposed critical deficiencies in intelligence coordination and information sharing across federal, state, and local agencies in the United States. In response, fusion centers were established as state- and locally-owned entities designed to integrate, analyze, and disseminate threat-related information among state, local, tribal, and territorial partners, federal agencies, and private-sector stakeholders. This paper examines the origins and evolution of fusion centers, the intelligence failures that necessitated their creation, and the legislative and policy frameworks that enabled their rapid expansion nationwide. It further explores the structural characteristics, operational functions, and multi-agency composition of fusion centers, emphasizing their role in intelligence-led policing and contemporary homeland security operations. While early implementation was marked by coordination challenges, inconsistent standards, and funding limitations, subsequent reforms strengthened their capacity to support terrorism prevention, crime reduction, and all-hazards preparedness. The paper concludes that fusion centers have become essential components of the national information-sharing environment, serving as central hubs for situational awareness, threat assessment, and collaborative decision-making. Despite ongoing challenges related to efficiency and sustainability, fusion centers remain a critical mechanism for addressing evolving security threats and correcting the intelligence failures revealed by the September 11 attacks.

Facial Expression Recognition Using Deep Learning with Multi-Level Data Analysis

Presenter(s):
Jahnavi Kasaram (Management Information Systems)

Chandra Manohar Puttagumpula and Pragathi Kodali (Management Information Systems

Faculty Mentor(s):
David Simmonds

Facial emotion recognition is an important area within computer vision and artificial intelligence, with applications ranging from healthcare and driver monitoring to human–computer interaction. This project explores the development of a deep learning–based system for classifying human facial emotions using grayscale image data. A convolutional neural network (CNN) was designed and implemented to analyze facial features and map them to distinct emotional categories. The study also investigates how dataset characteristics–

particularly class imbalance and variations in pixel intensity distributions–affect model performance. Advanced data engineering techniques, including multi-level data representation and iterative aggregation, were employed to better understand feature patterns and class distributions. The model achieved a validation accuracy of approximately 54%, demonstrating moderate effectiveness in emotion classification. Performance was strongest for dominant classes such as happiness and neutral, while minority classes like disgust and fear showed significantly lower accuracy due to limited representation. Confusion matrix analysis further revealed misclassification between visually similar emotions. Overall, the findings highlight both the potential and limitations of CNN-based facial emotion recognition systems. While effective for well-represented emotions, model reliability is heavily influenced by dataset balance and feature variability, emphasizing the need for improved data strategies in future research.

Digital Divide and Academic Integrity: AI and Inequality in Southern Education

Presenter(s):
Sara Kazi (Chemistry)

Faculty Mentor(s):
Sara Bicard and Kate Simmons

Educational inequality in the American South remains a persistent structural challenge, reflecting access to quality education and emerging forms of digital literacy. As artificial intelligence (AI) becomes increasingly integrated in academic writing, these inequalities raise questions about how "appropriate" AI usage can or should be regulated within contexts that lack resources. The parameters for appropriate AI usage function as reflections of unequal opportunity. This topic invites interdisciplinary dialogue among educators, scholars, historians, and technologists about how AI might reshape the South's longstanding educational divides. Ultimately, this project asks: To what extent does the ability of college preparatory programs to manage appropriate AI use in academic writing depend on the historical and infrastructural inequalities that shape education in the American South? Addressing this question is essential for ensuring that AI-based academic support does not deepen existing inequalities and contributes to a more equitable future for Southern students.

Preliminary Effects of Morning Outdoor Movement Breaks on Stress Reduction and Academic Engagement in High School Students with Emotional/Behavioral Disorders and Learning Disabilities

Presenter(s):
Jessica Kirkland (Special Education)

Faculty Mentor(s):

High school students with emotional or behavioral disorders (EBD) and learning disabilities (LD) often experience elevated stress and reduced academic engagement, particularly during morning instructional periods. This single-case ABAB reversal design study examined the effects of an 8-minute outdoor morning movement break on self-reported stress and on-task behavior among six high school students receiving special education services. During baseline the six participants participated in their typical morning routine with no outdoor break. Intervention consisted of daily light to moderate movement routines implemented immediately before students entered the classroom. Dependent variables included percentage of on-task intervals, frequency of teacher redirections, and pre/post self-rated stress (0–10 scale). Results indicated consistent improvements across participants. Mean on-task behavior of participants increased during intervention phases, with reduced variability and minimal overlap with baseline. Teacher redirections decreased in level and variability following the movement break. Self-reported stress ratings showed immediate reductions, with post-break scores consistently lower than pre-break scores across both intervention phases. A treatment checklist was used to measure procedural fidelity which averaged 95%. Interobserver agreement was acceptable averaging 92% across 30% of the sessions. This feasible, low-cost practice may help educators support student readiness for learning and improve classroom climate.

Building and Sustaining the Davao Innovation Ecosystem

Presenter(s):
Pragathi Kodali (Management Information Systems)

Srilekha Mandali (Management Information Systems)

Faculty Mentor(s):
Donald Amoroso

The study's primary aim is to understand the success factors for technology business incubators (TBIs) and accelerators in the Philippine ecosystem. This research program focuses on the ecosystem predominantly in Davao City and augmented by accelerators in Makati, Metro Manila. We recognize that all the players in the ecosystem need to be addressed for analytical completeness, including incubators, accelerators, start-ups, government agencies, investors, and consultants. A qualitative, exploratory design was used to discover the dynamic nature of the innovation ecosystem in Davao, with incubators and accelerators as the primary focus. The study was conducted through interviews with 18 incubator, accelerator,

foundations, and government organizations to obtain a comprehensive view of the Davao ecosystem. A semi-structured interview script was developed to capture the topics in the literature review. After conducting a series of interviews with directors of ecosystem organizations, we systematically synthesized the case studies of the qualitative data. The findings in this paper are summarized into three cases based on the interview data collected: USeP Advanced Great Innovation Laboratory (AGiLab) incubator, Upgrade Innolab accelerator, and Wadhwani foundation. After looking for the emergence of themes, the findings of this paper provide a practical strategic framework for designing the business models for incubator and accelerator leaders, particularly in Mindanao and other resource-constrained regions. Across both Upgrade Innolab and USeP AGiLab, capacity building emerges as a central theme. All of the case studies show the collective reinforcement of the value of non-financial support systems (e.g., pedagogy, mentor networks, curriculum integration, leadership development).

Affordances of AI in Telemedicine: Extending the Motivation-Opportunity-Ability (MOA) Framework with Insights from Two Developing Countries

Presenter(s):
Sadvika Koyilada (Management Information Systems)

Faculty Mentor(s):
Mansah Preko

Artificial intelligence (AI) is rapidly transforming telemedicine, yet theories to explain how AI-enabled functionalities influence technology use in healthcare systems of developing countries remain limited in extant literature. This study, therefore, extends the Motivation-Opportunity-Ability (MOA) framework by integrating insights from the theory of affordance to examine how AI capabilities reshape telemedicine adoption in Ghana and India. By drawing on the combined theoretical lens of the two adopted theories, this study seeks to answer the underpinning research question: "How do AI-enabled technological affordances reshape the Motivation, Opportunity, and Ability mechanisms underlying telemedicine adoption and use in developing country healthcare systems?" This study employs a qualitative, multiple-case-study approach to unearth its findings. The study's contribution lies in the conceptualization of an extended affordance-based MOA framework for AI-telemedicine adoption in developing countries.

From Tree to Paper

Presenter(s):
Jackson Lanthrip (Fine Arts)

Faculty Mentor(s):
Lynn Stallings

From Tree to Paper is a creative research project where I did an art study on trees. I used India ink as a medium and branches/sticks from the trees I drew as my tools. I used the stick drawing technique with India ink to create my two drawings. This project was inspired by Tabernas' Desert Run in which the artist rode a bike across the desert and collected water and then created a watercolor painting of a cactus from the water collected.

The Vine That Ate the South—Did Kudzu Change Its Morphology? A Course-Based Investigation of Kudzu Across Continents

Presenter(s):
Shyanne Lasseter (Biology)

Faculty Mentor(s):
Claudia Stein

Snake Buelman, Emma Golfos, and Jade Zook (Biology) Kim Monroe (Environmental Sciences)

Invasive species often exhibit shifts in morphology that enhance their performance in novel environments. Kudzu (Pueraria montana) is one of the fastest-growing invasive plant species in the southeastern United States. In 1876, kudzu was purposefully introduced from Japan to the US at the Philadelphia Centennial Exposition. We hypothesized that kudzu in its invasive range exhibit traits associated with rapid growth and spread, including larger leaves, wider stems, and longer internodes compared to populations in its native range. As part of a course-based undergraduate research experience in Botany, we used digitized herbarium specimens from iDigBio to compare leaf area, stem width, and internode length between kudzu from its native range in East Asia and its invasive range in North America. We found no significant difference in leaf area between native and invasive populations. However, stems were significantly wider in the native range, while internode length was greater in the invasive range. Longer internodes in invasive populations may indicate faster horizontal spread and extension into the canopy, whereas thicker stems in native populations may reflect differences in environmental constraints between native and invasive ranges. Our findings suggest that morphological shifts in invasive populations do not necessarily involve uniform increases in size, but rather changes in growth form that may enhance spread and competitive ability.

Cognitive Flexibility Deficits in Children with Developmental Language Disorder

Presenter(s):
Leilani Leshoure (Communication Disorders)

Faculty Mentor(s):
Juanita Lloyd

This presentation examines the interplay between cognitive flexibility and Developmental Language Disorder (DLD) in children, a condition that affects 7-10% of school-age children globally. The research investigates how cognitive flexibility, the ability to adapt mental sets and shift attention, relates to language processing and acquisition. Key findings are expected to demonstrate that children with DLD exhibit reduced performance in set-shifting tasks and correlate these deficits with poorer narrative quality. The study aims to support the integration of executive function training within speech-language therapy to enhance language outcomes and encourage future interdisciplinary research to explore causal relationships.

MGM Art Scene

Presenter(s):
Kate Lindsey-Hunter (Communications)

Faculty Mentor(s):
Kendra Love

Dezzy Crumpler, Brionna Crumpler, Kenzie Holland, and Alexis Taylor (Communications)

Montgomery, Alabama has a growing art scene, but it is often overlooked due to most organizations being ran independently. This makes it difficult for people to find and connect with local artists and events, especially when they're outside the community. The MGM Art Scene Instagram account was created to bring everything into one place by highlighting artists, sharing events, and encouraging community participation. The project focuses on building connections and increasing visibility through interactive content and collaboration with local organizations. It also sets goals for growth, engagement, and community involvement, while planning quarterly mini-documentaries to showcase the art scene. Overall, the platform aims to make Montgomery's creative community more visible, connected, and accessible. We want everyone to see a community that creates wonderful things. To be encouraged to join, show their art, or be inspired by the things they see.

Technology-Business Incubators Fuel the Growth in the Philippine Ecosystem: The Societal Impact

Presenter(s):
Srilekha Mandali (Management Information Systems)

Pragathi Kodali (Management Information Systems)

Faculty Mentor(s):
Donald Amoroso

The primary aim of this study is to understand the success factors for technology business incubators (TBIs) in the Philippine innovation ecosystem and their impact on society. The research focuses on the regional ecosystem in Davao City and is augmented by accelerators in Makati, Metro Manila. Using a case approach, we conducted a series of interviews with directors of key ecosystem organizations and synthesized the findings. The findings reveal that the incubator's purpose is the most critical driver of its success, more so than its strategy or support mechanisms. At the same time, incubator support was highly correlated with the strategy of the incubator. Furthermore, the wider impact of the incubator on both society and the innovation ecosystem showed a significant correlation with both strategy and support.

Emotional Intelligence and Relationships in Physical Education: Exercise, Emotions, Elevation

Presenter(s):
Aneshia Marshall (Kinesiology)

Faculty Mentor(s):
Cornell Foo

Physical Education is the foundation for a student's love for activity, with the student-physical education coach relationship at its core. Researchers have delved into how relationship quality and emotional intelligence affect coaches and athletes. This research explores how these same frameworks benefit the physical education classroom.

Eco/Nature Poetry and Conservation

Presenter(s):
Jamie McBride (English)

Faculty Mentor(s):
Stephanie Dugger

This is a presentation of poetry created during the semester. The theme is nature's beauty with a message of why it is important to conserve it. Furthermore, this presentation shows how one can find the beauty in the small things in life.

Captured Kindness

Presenter(s):
Shaniece McGhee (Communication)

Omari McMurray (Communication)

Faculty Mentor(s):
Kendra Love

Some of the basic human needs in this world are food and water. Unfortunately, millions of Americans face food insecurity around the country. Alabama is no exception. To shed light on these challenges, we decided to spotlight food pantries in Montgomery, Alabama, that are giving back to the community in a meaningful way. As students attending Auburn University in Montgomery, we felt it was necessary to showcase the food pantries in our communities and hear about the impact they are making. We believe that everyone deserves access to food, no matter who you are or where you come from. It's important that we rely on our neighbors and foster deep relationships that will help uplift each other in a time of need. Whether it's a harsh challenge or a big change, all we can do is support them. We highlighted three food pantries in the surrounding Montgomery area. Maggie Street Baptist Church, True Divine Baptist Church, and Love Loud Montgomery. All three locations are faith-based and are a big reason for committing to serve the community. They operate the pantries with care, efficiency, and love to ensure that anyone who walks through their doors will leave satisfied. Our team interviews the directors of the food pantry and asks questions that will help us understand why they do what they do, how they do what they do, and when they do what they do. We want to capture the moments of people doing the work that will bring a smile to someone's face and food on their plate. The process of volunteers unloading the truck, sorting them into bags, and finally giving them to someone's hand. Our goal is to make a video and create a public platform that showcases food pantries and brings awareness. That is because food pantries are for everyone in need, and it is good to know where you can turn to when money is tight and you're down on your luck.

D'J Pancake and the Grotesque in Appalachian Fiction

Presenter(s):
Mya Mclean (Criminal Justice and English)

Faculty Mentor(s):
Michelle Aitken and Jordan Dominy

The Appalachian South finds itself in a neglected pocket of the broad discourse regarding southern literature. Despite the lack of exposure, this subgenre of southern writing, this mountain country, hillbilly, Appalachian phenomenon, at its core, is the purest delineation of what readers regard as Southern Gothic. Considering the seemingly rejected or unrepresented nature of Appalachian culture in southern literature, the works of Breece D'J Pancake deserve their turn in the spotlight. Pancake, an Appalachian man himself, adds nuance to the realm of Southern Gothic. Pancake writes in a way that integrates the Southern Gothic and Grit Lit genres. Via the personal life experiences of Pancake, his short story "Trilobites" checks all of the boxes of Southern Gothic literature. The bedrock principle of Southern Gothic, the grotesque, is seen through the main character, Colly. After the death of his father, Colly is left with his family farm. Between the lack of Colly's farm expertise, lack of self-confidence, and his mother's fascination with the possible payout for the farm, Colly finds himself stuck. Spiraling into destructive behaviors, Colly will inevitably succumb to his own demise and fail the last token of his family, both the inheritance of the farm and his emotional connection to the land. This is a new and advanced grotesque. Unlike most reputed Southern Gothic predecessors, this is the grotesque not found in the deconstruction of the aristocracy of the post-antebellum. This is the grotesque that is found in Grit Lit, the gritty realism of the indoctrinated of the white poor. The main character of Trilobites demonstrates the grotesque in the regional influence of toxic masculinity, sexual honor, and a manipulated devotion to the land. Through the lens of the gritty, failed farm boy, the trademark of Southern Gothic grotesqueness is revealed. By the merging of genres, perceptions, and motifs, Pancake cultivates a new way to the grotesque that is deserving of scholarly attention.

Image-Based Classification of Cultured Fungi Using Patch-Level CNNs

Presenter(s):
Sandeep Medepalli (Computer Science)

Caitlin Cox (Biology) and Cameren Cunningham (Biochemistry and Molecular Biology)

Faculty Mentor(s):
Olcay Kursun and Benedict Okeke

Airborne fungi are a significant concern for public health, with over one million infections attributed to fungal exposure each year. These organisms are prevalent in both outdoor and indoor environments and are associated with a range of health issues, including allergies, asthma, and opportunistic infections. Beyond their health impact, filamentous fungi also play

important roles in industry due to their metabolic versatility. Accurate identification of fungal species remains challenging. Traditional approaches rely on morphological inspection or molecular techniques, which are often time-consuming and not well-suited for low cost, rapid or large-scale analysis. We develop a lightweight image-based classification framework using Convolutional Neural Networks (CNNs) to distinguish fungal species from colony images. To support this study, we constructed a dataset by collecting fungal samples from local outdoor environments and culturing them in the laboratory. Initial environmental samples frequently resulted in mixed-growth agar plates containing multiple fungal types. From these, over 25 morphologically distinct individual colonies were isolated and repeatedly cultured across multiple Sabouraud Dextrose agar plates by triplicate spot inoculation in each plate to obtain single-type samples. Images of the cultured fungi were captured after incubation for 48, 72 and 96 hours. Colony images were then segmented into smaller patches for training/testing representative texture. These patches were used to train both transfer learning models and a custom shallow CNN. Performance was evaluated at both patch level and aggregated colony level using voting schemes. AI methods have potential to enhance methods of identification of medically and industrially important fungi.

Why Did Saudi Arabia Choose to Intervene Militarily in Yemen in 2015?

Presenter(s):
Jayden Miller (Political Science)

Faculty Mentor(s):
Andrew Cortell

This project examines why Saudi Arabia chose to intervene militarily in Yemen in 2015 and what this reveals about why states engage in interstate war. It evaluates three explanations — the security dilemma, offense–defense theory, and the cross-border spread of civil war — using qualitative evidence on military behavior and territorial control and quantitative data on refugee flows from 2010 to 2015. The project tests which explanation best accounts for Saudi Arabia's decision, contributing to a broader understanding of foreign policy choice in conflict.

Neurodevelopmental Disorders - "The Why and How?" And Comorbid Communication Disorders

Presenter(s):
Jamiah Moorer (Communication Disorders)

Faculty Mentor(s):
Beth Herndon

My research activity will discuss what neurodevelopmental disorders are. Some communication disorders that are comorbid with neurodevelopmental disorders, meaning that they have the ability to coexist at the same time. My research will then break down the "why" and "how" between the two topics - breaking them down into 3 subcategories covering neurology, genetics, and birth injury. Lastly, I will include studies/findings that are appropriate and relevant to the discussion.

Nurse Coaching as a Primary Care Intervention for Adults with Obesity

Presenter(s):
Krystal Niel (Nursing)

Faculty Mentor(s):
Courtney Cochran

Background: Obesity remains a persistent clinical and public health challenge, particularly in rural populations with limited access to ongoing behavior-change support. Traditional primary care models often fail to provide structured, longitudinal interventions to support lifestyle modification. This project addressed the clinical question: In adult patients with obesity, how does a structured 12-week nurse coaching intervention, compared to standard care, impact weight, BMI, and self-efficacy over 12 weeks? The aim was to evaluate the feasibility and effectiveness of nurse coaching as a primary care intervention. Methods: This quality improvement project utilized an observational cohort design guided by the Transtheoretical Model, Intentional Change Theory, and Integrative Nurse Coaching. The intervention consisted of a 12-week, 12-session nurse coaching program incorporating motivational interviewing, goal setting, and accountability. The setting was a rural primary care clinic in Alabama. Eight participants enrolled: seven completed pre and post intervention Integrative Health and Wellness Assessment™ (IHWA) surveys. Anthropometric measures were inconsistently collected due to instrumentation limitations and participant refusal. Results: IHWA data (n=7) demonstrated improvement in self-reported readiness for change and self-efficacy across multiple life domains, with the majority of participants demonstrating positive directional change post-intervention. Engagement varied widely, with session attendance ranging from two to 12 sessions. Conclusion: While nurse coaching demonstrated potential to improve self-efficacy and readiness for behavior change, significant barriers, including participant attrition, resource limitations, and measurement challenges, limit feasibility in this rural primary care setting. For sustainability and scalability, future implementation requires workflow integration, reliable instrumentation, and alternative delivery models to improve engagement and retention. This project highlights critical system-level considerations necessary to operationalize nurse coaching as a viable obesity intervention.

Cartilage Regeneration

Presenter(s):
Jannatara Nilima (Biology)

Faculty Mentor(s):
Lynn Stallings

Cartilage is a connective tissue that can be found in the joints and throughout the body. Cartilage allows for a smooth function of your joints, but if cartilage damage occurs, it can be hard for it to regenerate by itself. Cartilage damage can occur for various reasons, from sports injury to medical conditions like osteoarthritis. There are various methods being studied for cartilage regeneration, like tissue engineering, which uses stem cells, biomaterials, 3D bioprinting, etc. These methods can be affected, but clinical tests are needed. I will also be exploring current treatments like physical therapy, microfracture, or knee replacement. There is also a recent discovery uncovered by Stanford that shows stopping the protein gezyme has been shown to reverse cartilage loss. All these studies or methods can be effectively used in treating cartilage loss and letting millions live a normal life once again.

Depression Screening at a Suburban Long-Term Care Facility

Presenter(s):
Pamela Njungwe (Nursing)

Faculty Mentor(s):
Courtney Cochran

Background: This project examined whether staff education could improve depression screening rates in a suburban long-term care (LTC) facility. Depression affects approximately 20% of LTC residents, a significantly higher prevalence than among older adults living in the community. Despite national recommendations for routine screening and the availability of validated tools, depression remains underdiagnosed in LTC settings. The project was guided by the clinical question: "In adults age 65 years and older in a long-term care facility, does staff education on depression screening, compared with no staff education, increase the rate of depression screening?" Methods: Three key interventions were implemented. First, the facility's admission/nursing observation form and its behavior management policy were reviewed to determine whether a depression screening protocol existed. Second, nursing staff knowledge was assessed using pre-education questionnaires followed by an educational intervention and post-education questionnaires. Third, both retrospective and prospective chart reviews were performed to compare depression screening rates before and after the educational intervention. Results: The results revealed several critical findings. The facility lacked a depression screening policy. Pre-education questionnaires showed that staff had limited knowledge of depression screening, while post-education questionnaires demonstrated substantial knowledge improvement. Awareness of the absence of a depression screening policy increased from 40% (n=8) to 90% (n=18); awareness of the behavior management policy rose from 45% (n=9) to 100% (n=20); and knowledge of recommendation regarding

depression screening increased from 45% (n=9) to 95% (n=19). Chart reviews demonstrated improvement in screening rates after the education intervention. Retrospective review showed that 6.67% (n=2) of residents were screened for depression, while prospective review revealed an increase to 90% (n=27) after intervention. Also, no residents who screened positive for depression were referred for assessment prior to the intervention. After the intervention, 100% of residents who screened positive (n=15) were referred for follow-up. Of these, 80% (n=12) completed follow-up, compared to 0% before the intervention. Conclusions: Staff education was effective in improving both knowledge and clinical practice related to depression screening. Key recommendations include developing a formal screening policy, adopting a validated screening tool, providing staff training, and implementing quality assurance processes. Overall, a standardized, evidence-based approach to depression screening in LTC facilities can enhance residents' care, improve mental health outcomes, and reduce healthcare costs associated with complications from untreated depression.

Do Explainable AI Models Explain the Same Thing Everywhere? An Institutional Perspective Using Public Healthcare Data

Presenter(s):
Sruthi Noothulakanti (Management Information Systems)

Sadvika Koyilada (Management Information Systems)

Faculty Mentor(s):
Mansah Preko

The growing use of machine learning (ML) in healthcare has generated substantial interest in predictive performance. However, comparatively less attention has been given to how algorithmic insights are shaped by institutional contexts. Consequently, explainable artificial intelligence (XAI) has emerged as a means to improve transparency, trust, and accountability in high-stakes settings such as healthcare. Despite its potential, existing research has largely treated explainability as a stable, model-level property and evaluated XAI techniques within isolated organizational or national contexts, which limits our understanding of whether insights travel across contexts. This study, therefore, adopts an information systems (IS) perspective to examine how institutional contexts condition the patterns, interpretability, and fairness of insights produced by explainable AI models. We leverage publicly available healthcare data from the United States and the United Kingdom to propose a cross-national comparative approach that treats public data as institutionally situated artifacts rather than neutral inputs. We also draw on institutional theory and socio-technical systems theory to conceptualize explainability as an emergent capability shaped by data infrastructures, governance arrangements, and population representation. Our research ultimately develops a theoretically grounded framework for understanding how institutional differences influence the behavior and interpretation of explainable AI models. Finally, we highlight public data as a valuable resource for transparent, replicable, and cumulative inquiry into algorithmic decision making. By reframing explainable AI as a context-dependent socio-technical phenomenon using the healthcare industry, we contribute to the IS healthcare literature by offering a foundation for future empirical research

Supporting Children Dealing with Grief and Loss: Concepts, Approaches and Interventions

Presenter(s):
Uzoechi Precious Nwadiaro (Counseling Education)

Faculty Mentor(s):
Yuh Jen-Guo

Grief is an emotional, mental, and/or physical response to a loss, often due to death but also encompassing other life changes, like breakup of the family unit, relationship, loss of pet, and response to the loss or death. Children in the state of bereavement, after losing someone, need support, as grief can be challenging for them to handle. While they may sense the sadness around them before they are able to comprehend the loss or death, children often look to adults for clarity and reassurance. Adults may fall short in the provision of needed support, because they too, like the children may be in the throes of grief. Grief in children and adolescents may present with wide variety of behavior or responses that point to their pain, anguish or distress. Grief is not a linear or collective process but individualist in nature. Piaget's developmental stages of growth is the theoretical approach used to highlight some ways grief manifests in children. Questions adults ask regarding impact of grief on children, familial/cultural methods of handling grief in children, areas requiring vigilance when children are grieving a loss, differentiating normal grief from complicated grief, when to seek professional consultation and interventions available for caregivers are some of the issues analyzed in this research presentation.

From Bits to Bytes to Brands: Lexical Diffusion of IT Innovations into the OED, 1948–2024

Presenter(s):
Lakshmi Naga Sravya Pamarthi
(Management Informations Systems)

Faculty Mentor(s):
Jeffrey Bohler

This study examines the relationship between IT innovation adoption and the codification of associated neologisms in the Oxford English Dictionary (OED). Drawing on Rogers' Diffusion of Innovations framework, we construct a 40-term lexicon across three landmark U.S. IT innovations: the Personal Computer (1975), the Internet/World Wide Web (1991), and the Smartphone (2007). We introduce the OED Lag Interval (OLI), defined as the time between a term's first documented use and its formal OED admission, as a measurable indicator of lexical diffusion. In addition, a five-dimensional Relative Impact Score (RIS) — anchored to data from McKinsey, GSMA, OECD, and BEA — is developed to quantify each innovation's civilizational impact. Findings reveal an inverse relationship between societal penetration and average OED lag, suggesting that lexical diffusion reflects Rogers' S-curve dynamics. We therefore propose the Dual Diffusion Hypothesis (DDH), which posits that IT innovations and their associated vocabularies diffuse in parallel S-curve patterns, with OED admission representing the "late majority" threshold of mainstream linguistic assimilation.

Constitution to Cost: Reframing Reform in Alabama Joint Prison Oversight Committee Hearings

Presenter(s):
Kirstin Paulk (Sociology and Psychology)

Faculty Mentor(s):
Brett Lehman

Alabama's correctional system has been under federal oversight since 2014. This supervision was prompted by a series of U.S. Department of Justice investigations that concluded conditions within the state's facilities for men and Julia Tutwiler Prison for Women violated the Eighth and Fourteenth Amendments. In 2020, the Department of Justice filed a lawsuit against the state of Alabama and the Alabama Department of Corrections, resulting in the state's continuation of a historical cycle comprising federal intervention, new prison construction, and persistent constitutional violations. Advocates for prison reform in Alabama are faced with the challenge of keeping their progressive cause visible within conservative opportunity structures. Between 2023 and 2025, Alabama prison reform movement leaders who appeared before the Joint Legislative Prison Oversight Committee increasingly reframed the Alabama Department of Corrections' high rates of incarceration, underpaid or unpaid labor, racial disparities, violence, and death from identifiable constitutional rights violations to fiscal liabilities for state taxpayers. This study employs discourse analysis to examine how advocates have adapted their tactics over time in response to poor legislative outcomes, while considering the potential implications of these discursive transformations for public perceptions of incarcerated individuals.

Dysphagia

Presenter(s):
Nicole Pegado (Communication Disorders)

Faculty Mentor(s):
Ashley Godwin

The research will explain different aspects of dysphagia, treatments and how that can impact the carrier of that disorder.

Generation Z and The Rise of Community College

Presenter(s):
Matilda Perryman (Political Science)

Faculty Mentor(s):
Lynn Stallings

University has always been the "door" to success, however what happens when a different generation decides to see it otherwise. This research highlights the reasonings why Generation Z chooses community college over university. It will take different factors like financial considerations, flexibility, job market alignment and more to understand what attracts Generation Z, also known as Gen Z. Within this study, yield rates will be used opposed to enrollment rates, as it tracks who enrolls into community college. This study also includes several control factors to isolate the effects of institutional features. The main goal of this research is to see the change in numbers of community college over the years with this new generation.

Automated External Defibrillator Training: Promoting a Culture of Safety

Presenter(s):
Leanna Michele Phillips (Nursing)

Faculty Mentor(s):
Courtney Cochran

Background: Out-of-hospital cardiac arrest (OHCA) survival is highly dependent on early defibrillation; however, bystander automated external defibrillator (AED) use remains low due to knowledge deficits and lack of training. At a selected university, there was a gap in staff education and AED awareness, and no formal training policy. The aim of this project aimed to improve AED readiness and promote a culture of safety. Methods: This quality improvement project utilized Rogers' Diffusion of Innovation Theory to guide implementation. A pre–post design was conducted with a convenience sample of library staff (n=8). The intervention included a one-hour face-to-face AED training with didactic instruction and hands-on simulation. Data were collected using paired pre- and post-surveys assessing knowledge, confidence, and willingness. Descriptive statistics and frequency comparisons were used to evaluate changes in outcomes. Results: All participants (n=8, 100%) completed both surveys. Post-intervention results demonstrated a 100% increase in correct responses regarding AED purpose, location awareness, and usage steps. Confidence levels improved, with participants reporting moderate-to-high confidence increasing from 25% pre-intervention to 100% post-intervention. Low-confidence responses were eliminated (0% post vs. 50% pre). Willingness to use an AED improved, with participants indicating willingness increasing from 37.5% (3/8) pre-intervention to 75% (6/8) post-intervention. Conclusions: This project demonstrated that a structured, face-to-face AED training significantly improves staff knowledge, confidence, and willingness to respond to OHCA events. From a systems perspective, the findings support scalability by integrating AED training into campus-wide safety programs and onboarding

processes. Sustainability strategies include annual refresher training, standardized AED signage, and policy development. Expanding this intervention could reduce response times and improve survival outcomes, reinforcing a culture of safety and emergency preparedness.

Optimizing Remote Monitoring for Blood Pressure Control in Patients with Chronic Kidney Disease

Presenter(s):
Katelyn Pike (Nursing)

Faculty Mentor(s):
Courtney Cochran

Hypertension remains a key modifiable risk factor in the progression of chronic kidney disease (CKD). Nevertheless, blood pressure (BP) control among individuals with CKD stages 3–5 is frequently suboptimal, owing to limited monitoring, delayed clinical intervention, and suboptimal adherence. This quality improvement project sought to address this clinical gap through the following clinical question: In adult patients with CKD stages 3–5 and hypertension, how does implementing a remote patient monitoring (RPM) program, compared with standard care, affect BP control and adherence over 12 weeks? Guided by an evidence-based practice framework, an RPM intervention was implemented in an outpatient nephrology practice in the southeastern United States. Twelve participants (n = 12) were enrolled and provided with cellular-enabled BP devices integrated with the electronic health record. The intervention encompassed weekly data review, structured patient education, and real-time medication adjustments. Adherence was operationalized according to Centers for Medicare & Medicaid Services (CMS) criteria as ≥16 BP readings per month, and outcomes were evaluated using descriptive statistics. All participants completed the 12-week intervention. Mean systolic BP decreased from 148 mmHg at baseline to 134 mmHg post-intervention, a 14 mmHg reduction, while mean diastolic BP declined from 82 mmHg to 74 mmHg. Adherence improved substantially, with 100% retention and 83% of participants meeting CMS-defined adherence thresholds by month three. Additionally, 75% of participants required medication adjustments based on transmitted RPM data, indicating enhanced clinical responsiveness. No hypertension-related hospitalizations were observed during the intervention period. These findings suggest that RPM is a feasible, effective, and scalable strategy for improving BP control, adherence, and patient engagement in adults with CKD. Integration of RPM into existing nephrology workflows and alignment with value-based care models support the sustainability and potential broader dissemination of this approach.

The Correlation Between Student Food Insecurity and High School Graduation in the U.S.

Presenter(s):
Michael Rossi (Economics)

Faculty Mentor(s):
Agnitra Roy Choudhury

Academic attainment is heavily correlated with a growing labor market as employers seek competitive and educated newcomers. While most students in the U.S graduate from high school, there are some who are left behind. This project aims at assessing the correlation between student food insecurity and high school completion among students throughout the U.S from years 2000-2025. Data was taken from U.S census databases for social, economic, and health research available through the Integrated Public Use Microdata Series (IPUMS). Regressions between variables related to child lunch meal subsidies, which are variables heavily correlated with food insecurity, and high school completion showed that students that used lunch meal subsidy programs were 4-5.5 percentage points less likely to complete high school with a 95% confidence interval. The results conclude that students from low-income backgrounds, which are less likely to receive sufficient food, are less likely to graduate high school.

The Birdz Stage Management

Presenter(s):
Aaron Rudnick (Theatre)

Faculty Mentor(s):
Neil David Seibel

I served as the Stage Manager of Birds For Theatre AUM's Fall 25 Production. Within my Website Shows my process and all the paperwork involved.

The Impact of Technology Use on the Developing Brain

Presenter(s):
Chesney Russell (Communication Disorders)

Faculty Mentor(s):
Marianne Morgan

My research presentation will highlight the impact technology has on the developing brain. It will include the recommended screen time vs. average screen time, the importance of development, and impairments it can cause if excessively used.

PCODCare AI: A Machine Learning-Based PCOD Prediction and Personalized Health Recommendation System

Presenter(s):
Dilshad Shaik (Computer Science)

Veeraiah Chowdary Ponnaganti (Computer Science)

Faculty Mentor(s):
Olcay Kursun

Polycystic Ovary Disease (PCOD) is a common endocrine disorder affecting women's reproductive and metabolic health. Early detection and personalized management are critical to preventing long-term complications; however, existing solutions often lack accessibility and adaptability. This project presents PCODCare AI, a machine learning-driven healthcare application designed for PCOD prediction and personalized recommendation. The system utilizes supervised learning algorithms to analyze user-specific clinical and lifestyle parameters, including age, body mass index (BMI), menstrual irregularities, and symptom patterns, to predict the likelihood of PCOD. The application integrates a full-stack architecture with a responsive web interface, a backend developed using Flask/Spring Boot, and a NoSQL database (MongoDB) for efficient data storage and retrieval. In addition to prediction, the system provides personalized diet plans, lifestyle modifications, and preventive healthcare recommendations based on the model output. PCODCare AI demonstrates the practical application of artificial intelligence, data analytics, and healthcare informatics in building scalable and user-centric digital health solutions. This project highlights the role of predictive modeling in preventive healthcare and aims to improve awareness, early diagnosis, and personalized disease management. Future enhancements include real-time data integration, wearable device connectivity, and advanced predictive analytics.

Aligning Curriculum and Pedagogy to Optimize Student Marketability for Students with an Enterprise System Concentration That Utilizes SAP

Presenter(s):
Sohail Shaik (Management Information Systems)

Sathwik Goli (Management Information Systems)

Faculty Mentor(s):
Benjamin Larson

Higher education institutions can partner with technology companies to reduce software costs and offer students training on specific products. This is increasingly popular, as resources are often tight for higher education organizations. SAP and other enterprise systems are a prime example, as there is value in students gaining experience with specific software. However, exposure and experience in software are only a small part of what a student needs to succeed. This research aims to evaluate the skills and attributes needed to make students more marketable as they pursue a more technology-specific path. SAP touches nearly 80% of all transactions, making it a valuable software in the industry. This paper examines job descriptions within a regional area to determine what skills and technologies should be included in the curriculum or recommended to pursue within your degree if you desire to pursue a career in a firm that incorporates SAP as an enterprise system. To evaluate job market needs in a regional area, job postings on Handshake in the area that mentioned SAP were selected. The descriptions were evaluated for duplicates, yielding 139 viable job descriptions. The job descriptions were then evaluated for content by at least 2 scorers to determine whether they required specific skills and attributes. This paper seeks to expand curriculum development by identifying a method for evaluating the skills required as a higher education organization aligns a degree or concentration with a particular technology to help students become more marketable. The paper found that most organizations required soft skills for their entry-level positions. The ability to perform analytics and system design tasks was also widely demanded. Excel: Most organizations specifically list Excel or spreadsheet knowledge as a requirement. The ERP-specific technology or certifications were not commonly listed; however, modules were mentioned for specific job roles. ERP concentration courses should include analytics and promote an understanding of the processes and process improvement. Project-based experiential learning and team-based gamified courses will improve soft skills. Industry partners should not only provide technological support to higher education but also help establish a community that fosters networking and more project-based learning to promote soft skills. As higher education organizations look to manage their resources by aligning with technology companies, there needs to be research to ensure that the alliance makes students marketable and their education sufficiently general in case technology shifts. Researchers need to expand their evaluation of curriculum design to better align career paths with the skills covered in the classroom. Higher education has a responsibility to help students to realize their goals and to become valuable members of society. Helping to align other aspects of curricula and pedagogy with specific technology and career paths is important as students enter a competitive job market. Future research should automate the process and expand to examine other technologies or certification concepts.

Immigrant Share, Skill Heterogeneity, and Native Annual Earnings

Presenter(s):
Riddhi Sharma (Economics)

Faculty Mentor(s):
Agnitra Roy Choudhury

Dylan Davis, James Easely,
Michael Rossi, and
Elijah Tyre (Economics)

This paper examines how immigrant share is associated with native annual earnings in the United States using CPS March/ASEC data from 1995 onward within a state-year panel framework. Although the project was initially framed around native wages, the analysis ultimately focuses on annual earnings because the main income measure in the dataset captures annual wage and salary income rather than a clean hourly wage rate. The dependent variable is log annual earnings, and the main explanatory variable is state-year immigrant share, particularly labor-force immigrant share. To estimate this relationship, I use fixed-effects regressions with CPS person weights, state and year fixed effects, and standard errors clustered at the state level. The empirical analysis includes a baseline model, high-skill and low-skill subsamples, a model with occupation fixed effects, and interaction specifications that test whether the relationship differs across worker groups. The results do not show a statistically significant overall negative relationship between immigrant share and native annual earnings in the baseline or most alternative models. However, the interaction results indicate that the relationship is significantly more negative for low-skill natives than for higher-skill workers. Overall, the findings suggest that immigrant concentration is not associated with lower native annual earnings across the board, but any adverse earnings relationship appears to be concentrated among lower-skill workers.

Creating A Certificate Program for Professional Communications Excellence with Virtual Reality and AI

Presenter(s):
Ichhya Shrestha (Management Information Systems)

Joshua Tobias (Business Administration)

Faculty Mentor(s):
Jeffrey Bohler

This study aims to help educators use technology to improve durable skills by developing a certificate program that uses virtual reality (VR) and artificial intelligence (AI) to improve public speaking and interpersonal communication. Recent surveys of employers indicate that graduates lack essential communication and professionalism skills, often leading to early job loss, highlighting the need for higher education to better prepare students for the workforce. To address this, a literature review on VR pedagogy was conducted, and insights from advisory committees were used to design the Professional Communication Excellence Certificate. The program is piloted in an undergraduate business communication course using VR simulations, AI-powered feedback, and real-world assessments. The pilot began in Spring 2026 with 28 voluntary participants, indicating strong student interest despite the program's demands. The study outlines a framework for developing technology-driven communication courses, emphasizes the importance of durable skills in both practice and research, and highlights the value of integrating innovative tools in education to better prepare students for the modern workforce.

Consumption and Perceptions of Carcinogens in Food

Presenter(s):
Kaleigh Skipper (Pre-Nursing)

Faculty Mentor(s):
Lynn Stallings

Public awareness of carcinogens in food has increased in recent years due to it becoming a trend for college students to focus on their health and what is in the food they are eating. Scholars have focused on food contaminants, mainly carcinogens like dyes and preservatives. This literature review focuses on findings related to cancers linked to foods people eat every day, with key topics such as organic foods, processed foods, and unknown additives.

Growing a YouTube Channel from Zero

Presenter(s):
Holly Soper (English)

Faculty Mentor(s):
Lynn Stallings

Millions of channels exist across YouTube, yet only a small percentage of them go on to reach the monetization threshold and build a large following. So, what keeps a channel from being buried by the dozens of other videos out there on the platform? What sort of content stands out, and how does one persevere? With three years of experience and having met the monetization threshold, I can't give a step-by-step guide to guarantee one will do well on YouTube. However, I am able to discuss habits and formulas that will contribute to long term growth, putting creators several steps ahead of the average beginner YouTuber. This way those who are posting on YouTube, whether they are expanding their business or using the platform as a creative outlet, can be seen by the right audience.

Standardization of Maternal-Infant Skin-to-Skin Contact

Presenter(s):
Artrina Stephens (Nursing)

Faculty Mentor(s):
Courtney Cochran

Background: Maternal-infant skin-to-skin contact (SSC) immediately following birth is best practice evidenced by enhanced outcomes for infants and is a contributor to short-term and long-term healthcare outcomes for newborns, including lowering the incidence of infant mortality. SSC validates execution after birth as a standard of care. SSC has a positive impact on infant mortality, cardiopulmonary stability, and thermoregulation. Infant bonding is enhanced and SSC relieves stress and pain for the mother and newborn. Neurodevelopmental advantages and mental health benefits exist for the mother, also. This practice is not the standard of care at the selected labor and delivery (L&D) unit. Implementation of SSC is inconsistent in practice at Baptist Medical Center South's (BMCS) Labor and Delivery (L&D) unit. Standardizing maternal-infant SSC according to evidence-based research criteria and governing organizations to practice, will ensure improved maternal-infant outcomes and afford more consistent practice. The clinical question guiding this project was, immediately following delivery, how do maternal-infant skin-to-skin best practices compare to current practice in the amount of time the mother and infant spends being skin-to-skin or are they placed skin-to-skin at all? Methods: The intervention of SSC included applying the newborn (after drying the newborn's skin) in direct ventral-to-ventral position onto the mother's chest and covering the newborn with the mother's gown and a warm blanket (ensuring that the warm blanket was dry), applying a dry hat to the newborn's head, and ensuring SSC for at least an uninterrupted hour. The project's (n=100) population was comprised of full-term gestational aged maternal-infant couplets participating in SSC immediately following the birth of the

infant regardless of having a vaginal birth or a cesarean birth. Results: Each month, the amount of time the infant spent skin-to-skin with its mother increased in August 2025, maternal infant SSC occurred for 39 minutes. The median time of SSC in the month of September was 45 minutes. In the month of October 2025, SSC occurred for 58 minutes. By November of 2025, the length of time that infants spent skin-to-skin with their mothers was 64 minutes. Conclusion: Positive outcomes for the infant supported a decrease in infant mortality to include low birth weight infants by decreasing the normal stressors of the infant as a consequence of birth, better and stable infant thermoregulation, less infant crying, increased breastfeeding initiation, and increased exclusive breastfeeding. Positive outcomes for the mother include earlier expulsion of the placenta, decreased vaginal bleeding, lowered risk of postpartum hemorrhage, improved hemoglobin status, self-efficacy of breastfeeding was increased, and lower stress levels. Findings from evidence-based research guided development of a proposed policy for staff to utilize in L&D to support SSC with all willing participants of term, uncomplicated deliveries.

Blood for Blood: An Exploration of the Isekai Genre's Limits

Presenter(s):
Joshua Stout (English)

Faculty Mentor(s):
Lynn Stallings

For this presentation, I will be conducting a reading of the first chapter of the novel I'm currently writing. The novel is titled "Blood for Blood". I wrote this piece as a response to a specific genre of Japanese literature dubbed "Isekai". "Isekai" describes work that focuses on the transmission of the story's protagonist into an alternate world or universe. As I've engaged with this media, I've become concerned about its ability to properly present serious societal issues such as discrimination, racism, and slavery. I wanted to effectively become the "representation" I expected out of these Japanese works by committing to my own take on the isekai genre.

Speech Therapy Intervention Following Deep Brain Stimulation in Adults with Essential Tremor: A Proposed Study

Presenter(s):
Autumn Thomas (Speech-Language Pathology)

Faculty Mentor(s):
Henrietta Boudros

Research Problem: Essential tremor (ET) is a neurological motor disorder that causes involuntary tremors of the body, including vocal tremor. Deep brain stimulation (DBS) is a surgical treatment option for individuals with ET who experience limited benefit from medication. Previous research has found that DBS can improve body tremors in individuals with ET. However, voice tremors may not improve and speech intelligibility may decrease following DBS surgery (Sandström et al., 2020). To date, limited research has examined whether speech therapy intervention following DBS surgery can improve speech intelligibility outcomes. Objectives and Methods: This study aims to address the following question: does post-operative speech therapy improve speech intelligibility in adults with essential tremor following deep brain stimulation? The study will recruit 10 to 15 adults with ET who have had a deep brain stimulation device implanted for at least six months. Speech intelligibility will be measured before and after therapy using the Sentence Intelligibility Test (SIT). All speech samples will be scored by blinded listeners to ensure objectivity in the assessment process. Expected Outcomes: This study hypothesizes that speech therapy following DBS surgery will significantly improve speech intelligibility in adults with ET.

Extraction and Partial Purification of L-Asparaginase Produced by a Bacterial Isolate

Presenter(s):
Colby Tillman (Biochemistry and Molecular Biology)

Sarmila Yesmin (Biochemistry and Molecular Biology) Oanh Nguyen (Chemistry) Sarah Folmar and Laken Kay (Biology and Environmental Science)

Faculty Mentor(s):
Benedict Okeke

L-asparaginase (ASNase) is an amidohydrolase principally catalyzing the hydrolysis of L-asparagine. ASNase has applications in medicine and food processing including treating acute lymphoblastic leukemia (ALL) and reducing acrylamide in heat-processed carbohydrate foods. ALL cells cannot synthesize L-asparagine, an amino acid, but require L-asparagine to proliferate; thus, hydrolysis of L-asparagine is a treatment for ALL cells. L-asparaginase has several sources from which it is derived, including microbial, plant systems, and most recently, human cells. Microbial sources, especially bacteria, continue to be the most effective

on the industrial scale. However, side effects such as allergic reactions, inflammation, fever, and severe toxicity to the liver and bones, result from ASNase. There are several sizes and forms of L-asparaginase, with efficacy and side-effects depending on the source. Known molecular weights range from ~30 kDa to ~150 kDa. More forms of ASNase continue to be discovered and modified. This research seeks to extract, partially purify and identify the properties of B1-7 ASNase. B1-7 produced ASNase in solid and liquid culture. Partial purification is being conducted through a combination of filtration and chromatography, utilizing enzyme assays to detect fractions with ASNase activity. Preliminary tests using centrifugal ultrafiltration (10, 30 and 100 kDa) demonstrated that the 30 kda membrane retained B1-7 ASNase but was not retained by 100 kda membrane. SP- sepharose and Q - sepharose ion-exchange fractions are being evaluated for ASNase activity. Further studies will focus on anti-cell proliferation activity of B1-7 ASNase, genomic sequencing and identification of ASNase gene, cloning, and heterologous expression of ASNase.

Improving Colorectal Cancer Screening Rates Using FIT Testing and Telephone Reminder Outreach in a Rural Primary Care Clinic

Presenter(s):
Geraldine Turner (Nursing)

Faculty Mentor(s):
Courtney Cochran

Colorectal cancer screening remains a critical preventive health priority, as early detection significantly reduces mortality. The clinical practice gap identified at the selected Federally qualified rural health center was suboptimal colorectal cancer screening rates among eligible adults aged 45–75. The clinical question guiding this project asked: In adults aged 45–75 receiving care in a rural primary care clinic, how does implementation of fecal immunochemical testing (FIT) combined with structured telephone reminder outreach, compared to usual care, affect colorectal cancer screening completion rates over 12 weeks? The goal of this project was to improve colorectal cancer screening completion rates and strengthen preventive care processes within clinic workflow. Methods: The intervention included FIT kit distribution during clinic visits, standardized patient education, and structured telephone reminder outreach conducted by nursing staff as part of routine workflow integration. A total of 27 eligible patients were included. Data were obtained from electronic health records, laboratory systems, and follow-up documentation. Screening completion was defined as return and processing of FIT kits within the implementation period. The intervention was designed to be sustainable through incorporation into existing nursing workflows and delegation protocols, supporting long-term systems-based adoption. Results: FIT completion rates increased from a baseline of 43% to 66.7% post-intervention, representing an absolute increase of 23.7%. Of the 27 participants, 18 completed screening, while 7 did not return FIT kits. Many completed screenings occurred following at least one telephone reminder call, demonstrating the effectiveness of embedding structured outreach into clinic processes. These findings indicate improved system efficiency in preventive screening workflows and enhanced patient engagement through standardized follow-up

processes. Conclusions: The findings demonstrate that integrating FIT distribution with structured telephone reminder outreach significantly improves colorectal cancer screening rates in a rural primary care setting. The intervention is low-cost, nurse-driven, and highly scalable, supporting adoption across similar rural and underserved settings. This systems-level approach has the potential to reduce preventive care disparities, improve population health outcomes, and strengthen long-term screening infrastructure in resource-limited settings.

Earned Income Tax Credit and Fertility Rate: State Level Analysis

Presenter(s):
Elijah Tyre (Economics)

Faculty Mentor(s):
Agnitra Roy Choudhury

Since 2007 the U.S. fertility rate has declined 23%, reaching a record low drop. This economic research examines the effect of financial incentives on fertility. The Earned Income Tax Credit (EITC) is our nation's second largest refundable tax credit welfare program. It is major function providing income support for low-income families with a potential incentive to encourage childbearing. The purpose of this investigation was to test whether EITC creates a significant positive effect on fertility rates. Using multi-state and multi-year differences in difference we examined fertility rate from 2007 to 2020 while controlling states, childbearing ages, and exploring variations in the state EITC programs over time to identify the effects. The results suggest that EITC incentives for childbearing are negative, but not statistically significant. Overall, the findings indicate that an increase in EITC is strongly not associated with a higher fertility rate.

A Systematic Evaluation of Protein Language Models for Structural Similarity

Presenter(s):
Priscilla Udomprasert (Computer Science)

Faculty Mentor(s):
Sutanu Bhattacharya

We present a systematic benchmarking study of embedding-based structural similarity across four protein language models (PLMs)—ESM-1b, ESM-2, ProstT5, and ProtT5—using 40,932 low-homology protein pairs (≤30% sequence identity) from the PISCES dataset. To contextualize performance, we compare against BLAST, representing sequence alignment without structural learning, and TM-Vec, a structure-supervised model trained on TM-align scores. Five similarity measures—cosine, Euclidean, RBF, Manhattan, and dot product—are evaluated on mean-pooled embeddings and correlated with TM-score variants (TMmin, TMmax, TMavg). Results show a clear hierarchy: TM-Vec achieves the highest correlation ($\rho = 0.771$), followed by ProstT5 ($\rho = 0.676$), ESM-2 ($\rho = 0.623$), ProtT5 ($\rho = 0.556$), ESM-1b ($\rho = 0.482$), and BLAST ($\rho = 0.392$). Notably, BLAST identity is negatively correlated with structural similarity ($\rho = -0.208$), highlighting its limitations in the twilight zone. BLAST also fails on 6.9% of pairs, whereas PLMs embed all sequences. ProstT5's strong performance is attributed to its structural pretraining with 3Di tokens. Cosine similarity consistently performs best, while dot product fails for models with high embedding variance. These results provide practical guidance for selecting PLMs and similarity measures for structure-aware protein analysis.

The Impact-Activation Model (I-AM): A Conceptual Framework for Understanding the Development of Mental Toughness

Presenter(s):
Heaven Underwood (Psychology)

Faculty Mentor(s):
Christine Garrison

Mental toughness (MT) is defined as an individual's capacity to handle stressors and obstacles. Previous studies have related multiple traits to one having MT such as lower neuroticism on the Big Five, or a high score on the adversity quotient (AQ), which tests an individual's capacity to change a situation through their control, ownership, reach, and endurance (CORE). Other studies aimed to explain how MT develops in relation to just one theory such as self-determination theory (SDT). Each study has found strong correlations between MT and a high capacity to handle stress, and each introduced strong arguments for MT relating to each theory presented. The gap in this previous research suggests that the relationship between biological traits and heavily-tested theories remain unclear. The present study attempts to address this gap with a conceptual Impact-Activation Model (I-AM) presenting the process of MT development. In order to design I-AM, a literature review was conducted with relevant studies on MT development, the Big Five, AQ, core self-beliefs, and physiological reactions to threats

to assess key associations. Evidence from existing research was synthesized into the I-AM conceptual model. Literature suggests MT development may be consistent with the diathesis-stress model, such that biological predisposition for behavior interacts with environmental triggers through the lens of core self-beliefs. The Impact-Activation model (I-AM) aims to explain the diathesis-stress-like relations of MT development through the trigger of a blow, or challenging event, via a core self-belief.

English Capstone Project

Presenter(s):
John Van Luchene (English)

Faculty Mentor(s):
Heather Witcher

William Burroughs's first novel delves into the underworld of 1950s America. Written in a fictionalized autobiographical style, Junky follows the vicious cycle of life as a heroin addict in post-World War II. The novel was originally dismissed by critics and reviled as a novel whose purpose was to glorify addiction; that was never Burroughs's intention. By presenting his audience with the fictionalized version of events from his own life, Burroughs explores the systems of power that exploit and marginalize those on the fringes of society. The villains of this novel are not traditional characters; instead, they are the systems that use and discard those who most need help. Burroughs exposes the harsh realities of an unspoken issue growing out of sight in American society. The 1950s saw the expansion of federal powers to deal with the growing addiction crisis. Presented as a means of dealing with the spread of addiction, and helping those suffering from it, these expanded powers instead turned addicts as pawns to be used to catch and punish others. Frequent raids led to a drastic increase in drug-related arrests, and those arrested were forced to turn informant or face more severe punishment. This expansion of drug laws, and harsher punishment for drug-related offenses, created a rapid increase in the number of addicts seeking treatment. Burroughs exposes how overcrowded treatment centers and overburdened doctors are forced to decide which patient has the best chance at recovery; turning treatment into triage. Burroughs shows his audience why recovery is so difficult by exposing the system that treats punishment as a form of treatment. Drugs serve as a form of escapism; the harsh punishments for drug-related offenses lead to a higher drive towards escapism. The burnt-out doctors and the police symbolize the failure of these power systems, and Burroughs exposes that failure. By chronicling the life of a man whose addiction is exacerbated by the very systems of power that were meant to help him, Burroughs shows how punishment only serves to turn addicts into criminals.

Physics-Informed Spectral Channel Learning for Efficient Photon Flux Ratio Prediction

Presenter(s):
Sushma Vem (Computer Science)

Hetulkumar hasm Patel (Computer Science)

Faculty Mentor(s):
Olcay Kursun

Spectrally averaged sky radiance and the photon-flux-to-irradiance ratio are key quantities for understanding regional climate, particularly the effects of clouds. Hyperspectral cameras can measure diffuse sky radiance at high spectral resolution, but they present practical challenges: long scan times can introduce artifacts during rapidly changing cloud conditions, and the resulting high-dimensional data is costly to store and process. For many applications, full spectral detail is unnecessary, and reduced representations are sufficient. This study uses hyperspectral sky images to simulate lower-dimensional imaging systems and evaluate their ability to estimate these key quantities. Specifically, we generate three types of reduced-channel images: (i) a four-channel representation based on a multispectral camera response with lens effects, (ii) a three-channel representation mimicking a typical phone camera, and (iii) a constrained learned spectral aggregation method, where a neural network maps 462 spectral bands into four physically interpretable channels. Experiments are conducted using the Cloud Radiance HSI dataset, which contains calibrated hyperspectral images spanning 400-1000 nm. Both linear regression and nonlinear tree-based models are evaluated under various channel configurations. Results show that spectrally averaged radiance can be accurately reconstructed using simple linear models, indicating that it is largely governed by linear spectral mixing. In contrast, predicting the photon-flux ratio requires capturing nonlinear relationships across channels, where gradient-boosted models significantly outperform linear approaches. Additionally, near-infrared information consistently improves performance across all methods. Overall, the neural-net aggregation approach offers advantages over fixed channel designs for photon-flux estimation. These findings highlight trade-offs between physical interpretability, hardware simplicity, and predictive accuracy.

Development of an Improved TTC-Based Assay for Measuring Respiration in Serratia marcescens

Presenter(s):
Shannon Warlick (Biochemistry and Molecular Biology)

Faculty Mentor(s):
Pete Haddix

Serratia marcescens is a common bacterium found in soil, water, and even everyday environments such as bathroom surfaces, where it can appear as a pink or reddish film in sinks or showers. Although it is usually harmless in the environment, it can act as an opportunistic pathogen in humans. One of its most notable features is its bright red pigment, called prodigiosin, which is thought to help the bacterium regulate energy production. This research investigated how S. marcescens carries out respiration, the process cells use to generate energy. We initially used a chemical called triphenyltetrazolium chloride (TTC) to measure respiratory activity during different stages of bacterial growth, but found that the method of adding TTC directly to growing cultures caused inconsistent growth patterns depending on temperature and whether the bacteria were producing pigment. To address this, we developed a modified measurement approach in which TTC was added after cells were collected at specific growth stages. With this improved approach, we measured consistent respiratory activity. Importantly, the respiration measurements very closely correlated with the rate at which the bacteria grow under nutrient-rich conditions. Overall, this optimized TTC-based test provides a reliable method for quantifying respiration in S. marcescens, enabling more precise investigation of how pigment production is associated with metabolic state and energy production.

English Capstone Project

Presenter(s):
Noel Warrior (English)

Faculty Mentor(s):
Heather Witcher

This presentation argues that The String of Pearls critiques disciplinary institutions by portraying asylums and prisons as spaces where the idea of reform and justice are undermined by confinement, deprivation, and surveillance. In the penny dreadful The String of Pearls, which is commonly referred to as Sweeney Todd, the narrative is centered around our character Sweeney Todd who organizes a scheme of murdering people within the vicinity of the barbershop he uses as a means of committing and concealing these crimes. At a point in the narrative, suspicion around the disappearances of individuals spread and started to connect to Sweeney Todd, causing authorities to act swiftly in hopes to restore public order. Tobias Ragg, who works as an assistant to Sweeney Todd, later understands the true orders and sinister nature of his adviser, and is then entangled in these crimes causing him to become

mentally distressed and unstable. He is then placed directly in the rigid and harsh structure of the Victorian asylum. Through analysis of the narrative in regard to Tobias's confinement in the asylum, this essay serves as an expression to how fear, trauma, and circumstantial suspicion caused his removal from public life regardless of his lack of criminal guilt. His susceptibility as a poor working boy, in conjunction to his lack of being able to articulate his experiences, led institutional authorities to diagnose his distress as madness. This scene from the sensational narrative falls in line with nineteenth-century discourse about asylum and institutional reform, as well as disciplinary monitoring, the essay argues that the text reveals how institutions that claim to restore order alternately legitimize social control, reinstating hierarchies that disproportionately affect marginalized people.

Junior: The Words We Never Heard from Walter Younger

Presenter(s):
Heiress Williams (Communication)

Faculty Mentor(s):
Lynn Stallings

When I learned I could do a research project for a creative option, I decided to initially choose a research project even though I'm an actor. I eventually decided to do what my life's work is: to create works of art, and perform them for an audience. I've recently read A Raisin in the Sun by Lorraine Hansberry and it tells the story of the Younger family and shows a look into their natural lives as they prepare to receive a check of $10,000. The play outlines arguments, family discussion, and themes of having dreams but due to circumstances, they are withheld and on pause. The monologue I will read is a piece I wrote that is told from the perspective of Walter Younger Jr., the only adult male of the house. He is the son of Walter Younger Sr who was the previous patriarch of the house. I wanted to write a monologue that goes into the mind of Walter Jr. and how he felt about wanting to make his own dreams while being the man of the house. He has dreams of owning his own store, but due to his family grieving at the moment he feels like his dreams are pushed to the side in favor of everyone else. This monologe is from the perspective of every other black man who has ever had their dreams ripped away, felt insecure, or has held a decade worth of tears for the terrorizing goal of being a man. The perspective of a son who has lived with a mother who absolutely loves him but has dominance over him in a house that isn't his. In the pov of a son who has only known women but still is afraid to show his true colors and has been bullied by other men around him to be a man.

Opioid Induced Constipation in Patients Post- Hospitalization and Admitted to Rehab

Presenter(s):
Eugennie Williams (Nursing)

Faculty Mentor(s):
Courtney Cochran

This quality improvement project examined a clinical practice gap in the inconsistent assessment and management of opioid-induced constipation (OIC) among patients transitioning from acute care for rehabilitation. OIC is highly prevalent yet often underrecognized in patients receiving opioid therapy, resulting in adverse outcomes and reduced quality of life. The guiding clinical question evaluated whether a standardized OIC assessment and early initiation of peripherally acting mu-opioid receptor antagonists (PAMORAs), compared to usual care, would reduce constipation severity and improve rehabilitation participation within four weeks. The project aimed to improve nursing knowledge and standardize evidence-based practice through education, protocol implementation, and clinical decision support. Evidence supports standardized assessment and early pharmacologic intervention, including PAMORAs, to improve outcomes and prevent complications. Interventions included providing an evidence-based educational session to nursing staff on OIC identification and management and implementation of a standardized bowel assessment protocol emphasizing early PAMORA use. Pre- and post-test questionnaires measured changes in nursing knowledge. Participants included 20 nursing staff and a retrospective chart review of 50 patients receiving opioid therapy. Results demonstrated significant improvements. Knowledge scores increased from 58% pre-test to 88% post-test ($p < 0.01$). Clinical outcomes improved, with bowel assessment documentation increasing from 40% to 85% and timely initiation of bowel regimens or PAMORAs rising from 35% to 78%, consistent with prior evidence.

Do Distinct Rhizobial Associations Reinforce Kudzu Promotion and Native Legume Suppression?

Presenter(s):
Myles Wright (Environmental Sciences)

Faculty Mentor(s):
Claudia Stein and Benedict Okeke

Invasive plants can alter soil microbial communities in ways that reinforce their own success and suppress native species. Kudzu (Pueraria montana var. lobata), a highly invasive legume in the southeastern United States, forms symbiotic relationships with nitrogen-fixing bacteria (rhizobia) that enhance its growth. Previous greenhouse experiments in our system showed that kudzu-associated soil biota suppress the growth of native legumes while promoting kudzu, suggesting host-specific plant–microbe interactions. However, it remains unclear whether kudzu and native legumes associate with the same or different rhizobial strains. We isolated bacteria from root nodules of kudzu and the native partridge pea (Chamaecrista fasciculata)

grown in sterile soil, kudzu-invaded soil, or uninvaded soil. Nodule isolates were cultured on selective media, and the 16S rRNA gene was amplified using universal primers (27F/1492R) and sequenced for taxonomic identification. We then compared bacterial identities between host species to evaluate overlap and host specificity. Preliminary results suggest differences in the composition of nodule-associated bacterial communities between kudzu and partridge pea. These findings indicate that host-specific rhizobial associations may contribute to positive feedbacks that favor kudzu invasion and suppress native legumes. Identifying whether invasive and native legumes share compatible rhizobia provides mechanistic insight into how microbial symbioses influence invasion dynamics and informs restoration strategies in invaded prairie ecosystems.

Transformation of L-Asparaginase Genes from a Trichoderma Species in Pichia pastoris Strains

Presenter(s):
Sarmila Yesmin (Biochemistry and Molecular Biology)

Faculty Mentor(s):
Benedict Okeke

Oanh Nguyen (Chemistry, Laken Kay and Sarah Folmar (Biology and Environmental Sciences), and Colby Tillman (Biochemistry and Molecular Biology)

L-asparaginase catalyzes the conversion of the amino acid L-asparagine to L-aspartate and ammonia. L-asparaginase can be found in living organisms including animals, plants, and microorganisms. However, microorganisms are the major industrial sources of L-asparaginase. One of the notable uses of L-asparaginase is in the treatment of Acute Lymphoblastic Leukemia (ALL). It helps treat ALL by breaking down the amino acid asparagine, depriving ALL cancer cells of L-asparagine. In the food industry it is also used reduce acrylamide formation during baking and frying of carbohydrate foods. While L-asparaginase is used to treat ALL, there are negative side effects including hypersensitivity. This has necessitated more research on L-asparaginases. This work focused on transformation of putative L-asparaginase genes from Trichoderma SG2 in strains of Pichia pastoris for potential expression of L-asparaginase. Trichoderma species SG2 produced L-asparaginase in liquid and solid medium. Putative L-asparaginase genes were identified from the genome of Trichoderma species SG2. The genes were synthesized and ligated onto an expression plasmid (pPICZαA). The plasmid construct carrying each gene was first linearized using two restriction enzymes SacI and PmeI and transformed into Pichia pastoris strains. Transformants resistant to zeocin the antibiotic marker on the gene were isolated. Further studies include evaluation of potential expression of L-asparaginase genes in liquid and solid media by the isolated zeocin resistant Pichia pastoris transformants and biochemical characterization.

Fanning the Flame of Creativity: Readings from the 2026 Issue of *Common Thread*

Presenter(s):
Tyson Wilson (Liberal Arts, MLA)

Faculty Mentor(s):
Stephanie Dugger

AUM's student-led literary and arts magazine, *Common Thread,* has been a platform for the university's diverse creative community, giving its creatives the chance to express themselves and connect with fellow artists. This year, *Common Thread* gave contributors more freedom of expression than ever, dropping its annual theme so that contributors could shape the 2026 issue according to their vision. The result was not just a new issue of *Common Thread* but also a statement of identity created by AUM's growing creative community. While some may argue that themes have been helpful in producing more focused issues of *Common Thread,* I assert that the 2026 issue is no less focused: it's true that themes have helped editorial teams produce issues of the magazine focused on the Editor-in-Chief's vision; however, it's also true that the lack of theme has been helpful in focusing this year's issue on its contributors' vision instead. Leaning into *Common Thread*'s student-led nature has resulted in the lengthiest issue in six years, showing not only the benefit of this year's shift in focus but also a growing creative community eager to share its art.