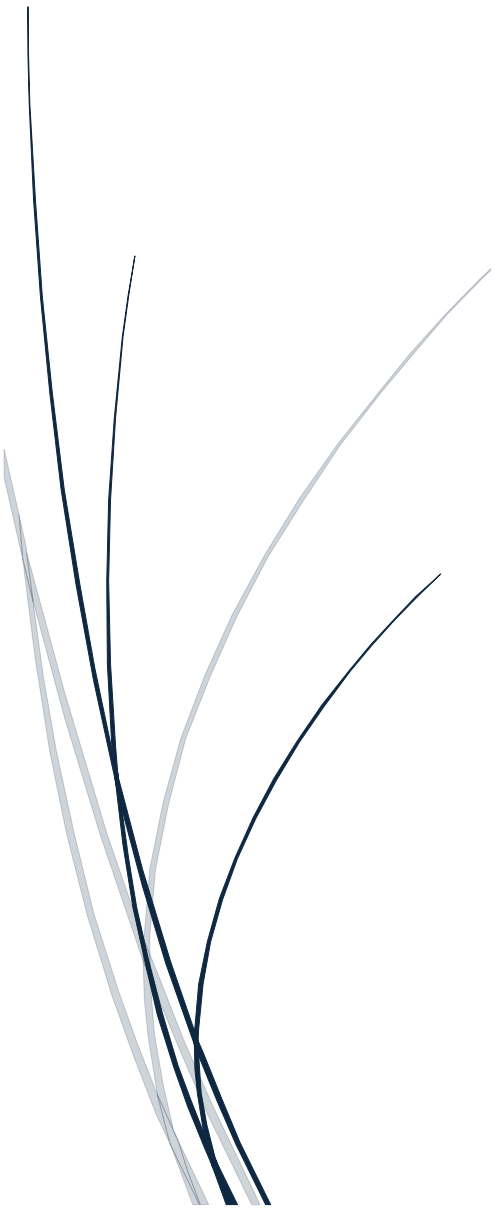
GRADUATE Showcase 4.9.26

Graduate Research and Creativity Showcase 2026



Abdul-Rashid, Yusif — Poster # 13

JSNN/Nanoscience — **1:00-2:00**

Faculty Mentor: Dr Kerui Wu — Health Sciences

Richard Sedeafor, Zara Sabeth, Morgan Gyger, Sindhu Yalavarthi, Jordan Mack, Kerui WuImpact: Innovation

***Developing a Novel Approaches for Screening Pancreatic Cancer by Exploiting the Expression Patterns of MHC Class II Molecules*.**

Pancreatic ductal adenocarcinoma (PDAC) is the most common type of pancreatic cancer, which mostly arises from the ductal epithelial cells of the exocrine pancreas. PDAC is an extremely aggressive cancer with terrible prognosis, limited treatment outcome, and an absence of reliable screening methods. Pancreatic cancer is typically diagnosed only after the disease has progressed or metastasized due to its highly aggressive characteristics and lack of typical early symptoms. Although early detection has been a major research focus for over 20 years, effective screening approaches remain elusive. Our research has demonstrated significant dysregulation of MHC class II gene expression in pancreatic cancer cells and in the small extracellular vesicles (sEVs) they secrete. These sEVs carry the MHC II genes expression of the pancreatic cancer cells and can be targeted to screen the disease. The outcome of this research has the potential to screen pancreatic cancer at the earliest stage of the disease without the patience showing any symptoms. Also, this research could provide an alternative and more sensitive approach to screening pancreatic cancer at the early stage. IRB-FY24-455

Adams, Mikaila — Poster # 1

CAS/English — **1:00-2:00**

Faculty Mentor: Dr. Christian Moraru — Arts & Humanities

Impact: Scholarly

Practitioners of Causality: Object-Oriented Ontology in Medieval Midwifery and Medicine

In the current anthropocentric climate, the importance of objects' agency has fallen to the wayside. Objects are perpetually overmined for what they do for humans, undermined for what they are made of, and ignored as actors in the chain of events that they do, in fact, participate in. Decentering humans and flattening the hierarchy between object-human relations is a core tenant of Object-Oriented Ontology. However, OOO is often overlooked as a theory in literature studies. My research works to close the gap between OOO scholars and Medieval literature scholars. My focus on the medieval gynecological text titled Trotula dives into medicinal remedies as written by midwives in the Middle Ages, pointing out their understanding of objects' agency as they act on and with the human body, illnesses, and one another. Thus, I argue that medieval scholars should be more keen to utilizing OOO as a prominent theory in their studies. Further, I suggest that the Middle Ages were not as "barbaric" as commonly assumed; in fact, their understanding of worldly objects was much closer to a "flat" ontology than we participate in, during this age of the Anthropocene.

Adegoke, Samuel

Poster # 14

JSNN/Nanoscience

1:00-2:00

Faculty Mentor: Dr. Dennis LaJeunesse

Health Sciences

Impact: Health and/or Safety

Polystyrene nanoplastics control natural transformation in Vibrio Cholerea

Bacterial multi-drug resistance (MDR) is a growing public health menace. Vibrio cholerae is one of the world most lethal pathogenic bacteria that has been reputed to perpetrate resistance evolution via the instrument of natural transformation. Natural transformation is the inherent ability of a bacterium to uptake free DNA from its environment and spread resistance evolution. In this study, we applied polystyrene nanoplastic(PN) to mediate natural transformation in Vibrio cholerae. The result showed that PN at an equimolar concentration significantly reduced transformation events in Vibrio Cholerae in all tested sizes with the exception of 1000 nm PN. This result was also supported by cell permeability and reactive oxygen species (ROS) study where all the sizes the PN did not directly affect the cell membrane and ROS production compared to the control. The SEM result shows that the cells interacted in a non-specifc manner with with the PN. This result taken together has the ability to control multi-drug resistance and by extension prevent the spread of resistance genes in both community and hospital settings.

Alemu, Abreham

Poster # 41

CAS/Biology

2:00-3:00

Faculty Mentor: Dr. Ayalew Osena

Natural, Physical, & Mathematical Sciences

Impact: Advancement

Gene Mining and Utilization for Enhancing Drought Stress Tolerance and Key Agronomic Traits in Selected Cereal Crops

Drought is a growing global threat to crop productivity and food security, with projections indicating that more than 75% of the world's population may be affected by 2050. Introducing C4 and CAM associated traits into C3 crops offers a promising strategy to enhance stress resilience. Tef (Eragrostis tef), a C4, small-seeded cereal valued for its gluten-free and nutritious grains, is inherently drought tolerant and represents a rich source of stress-responsive genes. Through gene mining in tef, we identified 729 drought-responsive genes (DRGs), from which three candidates: EtDRG1, EtDRG2, and EtDRG3 were selected for functional characterization using transgenic and gene-editing approaches. Transgenic rice expressing these genes exhibited enhanced drought tolerance under greenhouse conditions. Relative water use efficiency increased by 373–777% (EtDRG1), 76–486% (EtDRG2), and 5–10% (EtDRG3). Relative photosynthetic rate was increased by 818–5047%, 68–1233%, and 20–98%, respectively, while relative water content was improved significantly across all lines. In addition to stress tolerance, EtDRG1 and EtDRG2 significantly enhanced yield-related traits, including seed area (up to 36%), seed dimensions, and hundred-grain weight (up to 26% in rice and 55% in tef), without negatively affecting plant height. Transgenic lines also showed increased chlorophyll content and hypersensitivity to abscisic acid during germination, suggesting involvement of ABA-dependent signaling pathways. Ongoing comparisons with CRISPR/Cas9-edited lines aim to clarify gene-specific mechanisms. Collectively, these findings highlight the potential of tef-derived DRGs to improve drought tolerance and productivity in major crops under climate change.

Alshehri, Khaled — Poster # 63

SOE/Special Education — **1:00-2:00**

Faculty Mentor: Dr. Heather Coleman — Social Sciences, Education, & Business

Salih Rakap — Impact: Educational

Bridging Gaps in Inclusive College Programs: Challenges and Supports for Students with Intellectual and Developmental Disabilities

Inclusive college programs provide students with intellectual and developmental disabilities opportunities to take classes, build friendships, and prepare for employment. Although these programs have expanded across the United States, many students continue to experience challenges that affect their success and independence (Becht et al., 2020; Pennington et al., 2021). This systematic review examines existing research to better understand the challenges students with intellectual and developmental disabilities face in inclusive college settings and the types of supports programs use to address these challenges. Findings indicate that students often struggle with self-advocacy, daily living skills, academic expectations, and navigating complex campus systems (Qian et al., 2018; Wehmeyer et al., 2018). At the same time, supportive relationships with staff and peers play a critical role in student success, yet these supports are not always provided consistently (Carter & McCabe, 2021; Brendli et al., 2021). The review identified several evidence-based practices, including structured staff support, peer mentoring, and self-advocacy instruction. By bringing together evidence from multiple studies, this project highlights gaps between student needs and available supports. The findings emphasize the importance of strengthening inclusive practices, improving staff preparation, and providing more intentional supports to help students fully participate in college life.

Ambre, Joshua — Poster # 2

CAS/Creative Writing — **2:00-3:00**

Faculty Mentor: Mr. Derek Palacio — Arts & Humanities

Impact: Societal

The Test of Time: An Anachronistic Approach to the Historical Fiction Novel

Traditionally, one of the hallmarks of historical fiction has been its faithful representation of the past. But what is the past if not another story we tell ourselves—a story that is sometimes romanticized, sometimes demonized, but always to some degree otherized? Is a realistic portrait of the past in fiction truly possible? And is such a portrait even desirable?

My novel, Slow Burn, seeks to answer these and other questions through my rendition of the Vestal Virgins, an elite cult of six celibate priestesses in ancient Rome charged with keeping the Eternal Flame alight. Narrated in a playful, anachronistically contemporary voice, my novel draws delightful and disturbing parallels between ancient Roman and modern American society. Through this unconventional approach to storytelling, I work to defamiliarize the classical imperial world that my characters inhabit and that serves as the foundation for our current political landscape. This process of defamiliarization is absent from most mainstream historical fiction, but it is essential to telling meaningful stories within the genre. By immersing readers in a reimagined past, I invite them to envision a more progressive and inclusive future—one that will hopefully stand the test of time.

Amoah, Nicholas — Poster # 64

BSBE/Information Systems and Supply Chain Management — **2:00-3:00**

Faculty Mentor: Dr Motahareh Pourbehzadi — Social Sciences, Education, & Business

Moez Farokhniahamedani, Lakshmi Iyer — Impact: Educational

AI-Enabled Virtual Reality Training for Cybersecurity Communication Skills

Cybersecurity failures often occur not only because of technical weaknesses, but also because employees struggle to communicate risks clearly and confidently. Most training programs teach people how to recognize threats such as phishing emails, yet they rarely prepare employees to explain security concerns, ask critical questions, or engage organizational leaders in meaningful discussions about risk. This project explores how an artificial intelligence driven virtual reality environment can be designed to strengthen cybersecurity communication and stakeholder engagement skills.

Supported in part by the Chancellor's Initiative for Transformative Research grant and building on activities within the Spartan Cyber Guardian Academy, this work develops an immersive training system where learners practice realistic cybersecurity conversations with virtual executives and technology leaders. Within the environment, participants receive guided feedback from an artificial intelligence based mentor to improve clarity, confidence, and situational awareness.

This work matters because many cybersecurity incidents involve human error and organizational decision challenges alongside technical vulnerabilities. By combining immersive practice with structured feedback, this project contributes to ongoing conversations about innovative, experiential approaches to workforce education and professional development in an increasingly digital world.

IRB-FY26-87

Appiah, Emmanuel — Poster # 15

JSNN/Nanoscience — **1:00-2:00**

Faculty Mentor: Dr. Suzanne Ahmed — Health Sciences

Suzanne Ahmed — Impact: Health and/or Safety

Fighting Cancer with Precision, Not Pain

Cancer remains one of the world's deadliest diseases, largely because current treatments cannot distinguish between healthy and cancerous cells. Chemotherapy drugs like Doxorubicin kill rapidly dividing cells, but they also damage healthy tissue, leading to severe side effects. What if treatment could move intelligently through the body and act only where it is needed? We are developing tiny, soft "microswimmers" made from gel-like materials that propel themselves using a chemical process inspired by living systems: the Belousov–Zhabotinsky reaction. Unlike many existing micromachines that rely on rigid metals, these swimmers are soft, flexible and powered by organic fuel such as glucose. These smart microgels can sense their chemical environment, adjust their motion, and respond to changes around them. Their behavior shifts depending on their size and surroundings, allowing them to adapt dynamically. By utilizing this responsive movement, we envision microswimmers that could carry cancer drugs directly to tumors and release them precisely at the target site, reducing harmful side effects, improving treatment effectiveness, and moving us closer to a future of safer, smarter cancer therapy.

Ballard, Meha — Poster # 16

NURS/Nursing — **2:00-3:00**

Faculty Mentor: Dr. Karyn Roberts — Health Sciences

Impact: Health and/or Safety

Asian American Representation in U.S. Depression Clinical Trials: A Quantitative Analysis

Background: Asian Americans remain significantly underrepresented in U.S. depression clinical trials despite their growing population and substantial mental health needs, limiting generalizability and culturally responsive intervention development.

Purpose: This quantitative, cross-sectional, correlational study assessed Asian American representation in U.S.-based depression clinical trials (2015-2025) and examined associations with trial-level characteristics.

Methods: Using Andersen's Behavioral Model of Health Services Use as a framework, secondary analysis of 168 depression clinical trials from ClinicalTrials.gov was conducted. The dependent variable was Asian American representation (proportion of enrolled Asian/Asian American participants). Independent variables included study phase, U.S. geographic region, mean age, sex distribution, and enrollment size. Multivariable negative binomial regression analyzed associations.

Results: Asian Americans comprised only 2.8% of participants across trials, with 32.7% of trials enrolling zero Asian American participants. Only 1% of trials reported disaggregated subgroup data. Mean participant age showed the strongest association with Asian American representation, followed by U.S. geographic region.

Conclusions: Asian American representation in depression clinical trials falls far below population proportions and varies systematically by trial characteristics. Findings provide empirical evidence for developing targeted strategies to enhance inclusiveness and improve generalizability of depression research. Keywords: Asian Americans, clinical trials, depression, representation IRB-FY25-402

Bany-Essa, Mohammad — Poster # 17

NURS/Nursing — **1:00-2:00**

Faculty Mentor: Dr. Susan Letvak — Health Sciences

Thomas McCoy — Impact: Health and/or Safety

Risk Factors for Hospital-Acquired Pressure Ulcers in Jordan "From Hundreds of Thousands of Admissions to Actionable Predictors of Pressure Ulcers"

Hospital-acquired pressure ulcers (HAPUs) remain a preventable source of harm, cost, and inequity in acute care. Evidence in Jordan is limited by small samples and minimal integration of biomarkers and care-process reliability. This retrospective cohort with an embedded nested case–control analysis (2021–2024) will identify multivariable predictors of HAPUs in a large JCI-accredited Jordanian university hospital, integrating clinical indicators (Braden, comorbidity), biomarkers (albumin, hemoglobin; ± inflammatory markers when available), and organizational/process factors (unit type, prevention documentation, reassessment frequency, length of stay, staffing proxies). Guided by Coleman's framework with a Donabedian overlay, analysis will proceed in stages (indirect ? direct ? context), treat unit and calendar quarter as fixed effects, and use robust standard errors, nonlinearity checks, and internal validation. Outputs include an actionable risk-to-action table and pragmatic thresholds (e.g., albumin + Braden cut-points) to escalate prevention in resource-constrained wards. Findings will inform nursing policy, audit/feedback, and staff training locally, and provide a replicable method for comparable settings.Overall objective: develop a validated, context-specific risk profile for HAPUs that integrates clinical, biomarker, and organizational/process predictors to guide timely prevention. IRB-FY25-273_____

Barto, Garett

Poster # 42

CAS/Chemistry

1:00-2:00

Faculty Mentor: Dr. Jason Reddick

Natural, Physical, & Mathematical Sciences

Impact: Innovation

Functional Characterization of a Putative Linear Azoline Peptide Biosynthetic System in Bacillus anthracis

Bacillus anthracis exhibits substantial reduction of secondary metabolic pathways relative to closely related Bacillus species, frequently retaining partial biosynthetic systems while losing associated components. Genome analysis nevertheless reveals conservation of a putative linear azoline peptide (LAP) biosynthetic pathway, a class of ribosomally synthesized and post-translationally modified peptides known for potent antibacterial activity. Unexpectedly, the predicted precursor peptide gene in B. anthracis is separated from the core maturation enzymes by several hundred kilobases rather than forming a canonical biosynthetic gene cluster. This dispersed organization is conserved across related evolutionary lineages, suggesting functional retention despite broader metabolic loss. The persistence of this system is notable given that B. anthracis primarily exists in a dormant spore state outside infection, raising questions about the selective value of maintaining this pathway.

In this study, we pursue production of the mature linear azoline peptide using a model organism containing a near-homologous biosynthetic system alongside stepwise in vitro enzymatic reconstitution. The product will be structurally characterized to define the mature peptide. Subsequent experiments will determine the order and roles of tailoring enzymes responsible for post-translational modification. Finally, the completed peptide will be evaluated for antimicrobial activity against a panel of microorganisms.

Berdiales, Angelita

Poster # 3

CVPA/Music Performance

1:00-2:00

Faculty Mentor: Dr. Annie Jeng

Arts & Humanities

Impact: Educational

A Taste of the Andes: Peruvian Musical Identity in the Works of Gabriela Lena Frank

This study examines the representation of Peruvian Andean musical traditions in the works of Gabriela Lena Frank, focusing on their transformation within contemporary pianistic language. Drawing from her multicultural heritage Peruvian, Chinese, Lithuanian-Jewish, Frank reimagines Andean sonic elements such as pentatonic and modal melodies, parallel fourths and fifths, heterophonic textures, and rhythmic vitality inspired by traditional dances like the huayno. Indigenous instruments including the kena (notched flute), zampoña (panpipes), and charango inform her timbral imagination; rather than direct quotation, she evokes their sonorities through extended piano textures. Her music demonstrates how Andean musical identity is refracted through modern harmonic language, shifting meters, and percussive keyboard writing.

As a woman composer of Latin American descent in a historically male-dominated field, Frank's work carries additional cultural significance. Her music challenges canonical norms by centering hybrid identity and amplifying underrepresented voices, contributing to broader conversations on gender, representation, and cultural memory in contemporary classical music.

Bhaskar, Roshni G.

Poster # 65

CAS/Chemistry

1:00-2:00

Faculty Mentor: Dr. Maia Popova

Social Sciences, Education, & Business
Impact: Educational

3R: An Enhanced Organic Chemistry 1 Curriculum Centered on Real Life Context, Chemical Reasoning, and Representational Competence

The conventional organic chemistry curriculum often fails to generate student appreciation for the relevance of organic chemistry in important global contexts such as medicine, energy, technology, and the environment. 3R is an enhanced organic chemistry curriculum that focuses on Real Life Context, Chemical Reasoning, and Representational Competence. It centers critical organic chemistry concepts within the exciting and historically-relevant narrative of nitrogen mustard-derived cancer drug discovery. Students apply a breadth of chemistry concepts to a single cancer chemotherapeutic of their choice and trace their "pet molecule" through multiple assignments and a final infographic design project. 3R's design used the ADDIE approach and incorporated feedback from education researchers, chemistry experts, instructors, and students. It features pedagogical choices that are well-supported by research including the development of argumentative reasoning and context-dependent engagement with chemical representations. 3R was implemented across multiple sections at UNCG, and student learning data was collected for curricular evaluation. The curriculum and the results of its evaluation are currently being shared with the broader scientific community. The broader impact of this project is its potential to provide chemistry educators with practical tools to support student mastery of chemical representations, scaffold student reasoning, and foster student buy-in. IRB-FY25-458

Bianchi, Davide

Poster # 66

CVPA/Music Performance

2:00-3:00

Faculty Mentor: Dr. Annie Jeng

Social Sciences, Education, & Business
Impact: Educational

The Science of Piano Technique: Motor Learning and Pedagogical Practice

Playing the piano at a high level is not just a musical challenge it is also a remarkable feat of physical coordination and learning. My study explores how the science of motor learning can help pianists practice more effectively, play more freely, and develop healthier technique.

Drawing on research from neuroscience and psychology, the study explains how the brain learns movement, builds memory, and transforms conscious effort into automatic skill. It examines the roles of attention, motivation, feedback, sleep, and mental imagery in shaping long-term musical development. Rather than relying on repetition alone, the research highlights how smart practice designs can accelerate progress and reduce frustration.

The second part of the study translates theory into practical teaching strategies. It presents clear methods for organizing practice, breaking technical plateaus, retraining inefficient habits, and balancing conscious control with natural movement. Particular attention is given to providing students with tools to navigate the challenges of piano playing and ease the path to perform with confidence.

The central idea is simple: strong technical foundations built early free the mind for musical expression later. By applying scientific principles to everyday practice, pianists can cultivate more efficient, resilient, and enjoyable paths toward artistic mastery.

Bouti, Khaoula

Poster # 67

HHS/Community Health Education

1:00-2:00

Faculty Mentor: Dr. Sharon Morrison

Social Sciences, Education, & Business

Impact: Social

Mapping Language Diversity and Access to Community Services: Geographic Proximity versus Language-Appropriate Access Across Guilford County

Guilford County is home to 66,249 non-English speakers representing 121+ languages, yet healthcare systems support as few as 17 of those languages. Limited English Proficiency (LEP) populations face compounded barriers, geographic and linguistic, that result in lower preventive care utilization, higher uninsured rates, and poorer health outcomes. This study examines whether geographic proximity to healthcare, emergency, and social services predicts language-appropriate access for LEP communities.

Using multi-system data triangulation across five sources, U.S. Census, Guilford County Schools, NC Courts, local healthcare systems, and community organizations , this project employs GIS methods to calculate physical distance versus effective distance (distance to the nearest facility offering language-specific interpretation) for each language community. Hot spot analysis identifies high-concentration census tracts, revealing critical gaps: Montagnard, Arabic, Korean, and most African and Afghan language speakers lack consistent interpretation access despite geographic proximity to facilities.

Findings shift the planning question from where are people? to where are people AND what languages do they speak?"; fundamentally reorienting resource allocation across healthcare, emergency management, and social services toward language-equitable access.

Cabo Jr, Maurelio

Poster # 43

JSNN/Nanoscience

1:00-2:00

Faculty Mentor: Dr. Dennis LaJeunesse

Nitin More, Samir Kattel, Ram Mohan

Natural, Physical, & Mathematical Sciences

Impact: Innovation

BioFiber: Simple Yet Useful Integration in Bio-Nanocomposites for Sustainable Energy Storage

This work presents the development of simple, yet functional and innovative bio-nanocomposites derived from bacteria-origin materials called bacterial nanocellulose and layer-engineered structures with carbon fiber for sustainable energy storage applications. The designed composites exhibit tunable surface behavior, enhanced wettability, thermally stable, electrically active characteristics suitable for low-voltage and practical battery electrode-like functions, with improved antimicrobial performance, demonstrating their potential as multifunctional materials for next-generation energy devices.

Carsley, Jessica

Poster # 44

CAS/Chemistry

1:00-2:00

Faculty Mentor: Dr. Kimberly Petersen

Natural, Physical, & Mathematical Sciences

Jessica Carsley, Mason Gates

Impact: Health and/or Safety

Microwave Reactor Assisted Chiral Brønsted Acid Catalyzed Asymmetric Synthesis

Microwave reactors have been used in organic synthesis to facilitate reactions since the 1980s. In this paper we show that the reaction time can be substantially shortened for our previously developed chiral Brønsted acid catalyzed desymmetrization of diesters to yield lactones when performed in the microwave from 72 hours to 20 minutes without loss in yield or enantiopurity. Three additional organocatalyzed asymmetric reactions from current literature were explored and shown to exhibit similar benefits with the use of a microwave reactor. Although not traditionally thought of as a tool in asymmetric organocatalysis, we show that microwave reactors can benefit many enantioselective reactions, particularly those with long reaction times.

Chakrovorty, Rajata Suvra

Poster # 45

JSNN/Nanoscience

1:00-2:00

Faculty Mentor: Dr. Suzanne Ahmed

Natural, Physical, & Mathematical Sciences

Impact: Innovation

From Chemical Fuel to Biomimetic Motion : Engineering Autonomous Artificial Cilia

Cilia are tiny, hair-like filamentous organelles that perform functions essential for life, including sensing the environment and transporting fluids. In the human body, cilia work collectively and synchronously to pump highly viscous fluids from the lungs, a challenging task in the low Reynolds number regime where fluid inertia is negligible. The remarkable efficiency of cilia in moving viscous fluids has inspired researchers to develop artificial cilia and to better understand how coordinated motion emerges in cilia array. While many studies have explored these mechanisms through computational models, experimental platforms with autonomous artificial cilia are still needed. Although significant progress has been made in synthesizing artificial cilia, most existing systems rely on external actuation, such as magnetic, electrical, or pneumatic forces, limiting their autonomy. In this work, we introduce a chemically powered approach by developing hydrogel-based artificial cilia that responds to an internal oscillating chemical reaction, enabling autonomous motion without external control. These cilia structures convert chemical energy into rhythmic mechanical oscillations and exhibit biomimetic three-dimensional elliptical beating patterns. Their motion is influenced by internal chemical waves and local chemical gradients, resembling biological behavior.

This autonomous platform provides a model for studying collective motion and supports next-generation soft robotic materials.

Chapman, Olivia

Poster # 46

CAS/Biology

1:00-2:00

Faculty Mentor: Dr. Bryan McLean

Natural, Physical, & Mathematical Sciences

Impact: Scholarly

Gastrointestinal morphology and plasticity data are sparse across the Mammal Tree of Life

The gastrointestinal tract (GIT) represents the functional link between food and energy. It can be highly flexible in a variety of vertebrate taxa including fish, birds, amphibians, and mammals, responding to and buffering against changes in food resources or energetic demands. Here, we summarize current knowledge on GIT form and plasticity in mammals and find significant gaps across taxa and biogeographical realms. This resulted in the most comprehensive list of mammal species that have had quantitative GIT traits measured or been studied in the context of GIT plasticity to date. A total of 821 mammals with quantitative GIT traits were available (12% of all mammals), and only 78 mammals were studied in the context of GIT plasticity (1.1%). We find that little is known about how certain stressors influence GIT microstructure and physiology. Additionally, the actual mechanics of how these changes occur are poorly understood and remain largely unknown. We highlight the increased need to preserve and collect trait data from mammalian GITs, a series of organs that are often discarded or go unused during specimen preparation. Understanding how species alter their GITs in response to energetic costs is crucial to predicting how species may fare under rapidly changing environment.

Chaudhari, Kashish

Poster # 18

SOE/Informatics and Analytics

1:00-2:00

Faculty Mentor: Dr. Aaron Beveridge

Health Sciences

Impact: Health and/or Safety

The Second Fight: What Happens After You Beat Cancer

Cancer doesn't just affect the body — it can take a devastating toll on the mind. While medical advances have helped more people survive cancer, the emotional and psychological aftermath of a diagnosis remains largely unaddressed. One of the most troubling consequences is an elevated risk of suicide among cancer patients, yet this topic receives little attention in survivorship care.

This ongoing study is examining over 100,000 cancer patients from a national cancer database to better understand who may be most at risk of suicide following a diagnosis of brain, breast, liver, or prostate cancer. Using both traditional statistical methods and machine learning — a form of artificial intelligence — we are identifying patterns in how gender, race, age, and cancer type may influence suicide risk.

Preliminary findings suggest that male patients and younger individuals may face disproportionately higher suicide risk, with the greatest vulnerability appearing within the first two years after diagnosis. Ultimately, this research aims to help doctors and policymakers design better mental health screening programs, ensuring cancer patients receive psychological support not just during treatment, but throughout their recovery journey.

Choice, A'Niyah — Poster # 68

HHS/Human Development and Family Studies — **1:00-2:00**

Faculty Mentor: Dr. Esther M. Leerkes

Social Sciences, Education, & Business

Impact: Cultural

Exploring How Toddlers' Temperament Influences the Effects of Parenting in Black Families

Recent literature suggests suppressive emotion socialization is more strongly linked to maladjustment among White than Black children/adolescents (Nelson et al., 2013), raising questions about whether its adaptive effects are more explicit by race. Temperament further shapes children's sensitivity to parenting. Supportive parenting is particularly beneficial for children high in negative emotionality, especially in promoting social competence (Leerkes et al., 2009). However, little research has examined main and interactive effects of maternal emotion socialization and toddler negative emotionality in Black families.

Mothers reported on toddler's negative emotionality (i.e., level of reactivity to distress) and their responses to child distress at age 1, on child outcomes (i.e., internalizing and externalizing symptoms, social competence) at age 2. Results indicated that suppressive responses were linked to greater internal distress and lower social competence. Negative emotionality predicted greater external distress. Supportive responses promoted greater social competence among children who were more emotionally reactive but lower competence among those low in reactivity. Perhaps children who require less emotion regulatory support perceive this excessive guidance as intrusive undermining their social competence (Leerkes et al., 2009).

These findings indicate that children's temperament shapes how parenting strategies influence social-emotional development. Understanding these dynamics can inform culturally responsive intervention efforts. IRB-FY09-0035

Cochran, Hailie — Poster # 4

CAS/Creative Writing — **1:00-2:00**

Faculty Mentor: Director, MFA Writing Program Terry Kennedy

Emilia Phillips

Arts & Humanities

Impact: Cultural

Stank: An Intimate Exploration of Body Horror Through Poetry & Narrative

Every living thing on Earth, from free-roaming beetles to bacteria thriving beneath fingernails, lives contained—trapped in a body ever-changing. There is undeniable beauty in a caterpillar's transformation from wriggling worm to soaring butterfly; however, focusing solely on the beauty of change ignores what happens in that chrysalis: the liquification, the paralysis—the pain required to become gentle. These growing pains are universal, all around us—felt in our out-grown shoes, wrinkling hands, arthritic knees—and they're especially poignant in the hillsides and cityscapes of the Deep South.

As readers progress through this poetry collection, they discover an intimate narrative about the grotesque, tragic, and (at times) divine horror of having a body—human, animal, or otherwise. Unlike the 'body horror' one would expect to find in fiction, (reliant on unnecessarily jarring images of mutilation and gratuitous acts of violence), the horror unfolding in this poetry collection is real, faced everyday—not intended to make a spectacle of pain, but rather, to consider what can be learned from lost baby teeth, menstruation, roadkill, etc. There is a deep truth woven into these moments of unavoidable pain, guilt, grief—and this pursuit for truth keeps the heart of this collection throbbing.

Collins, Katherine

Poster # 69

SOE/Teacher Education

2:00-3:00

Faculty Mentor: Dr. Victoria Jacobs

Social Sciences, Education, & Business

Impact: Scholarly

Appreciating Teacher Curiosity During Discussions of Children's Written Mathematical Strategies

Curiosity has been shown to be a powerful motivator for teacher learning, yet little is known about how curiosity is manifested in professional development settings or what conditions support its emergence. In this study, I explored teacher curiosity about children's mathematical thinking, given the central role that children's thinking plays in a widely accepted vision of quality mathematics instruction. Seven pairs of upper elementary school teachers (14 teachers) participated in work sessions in which they discussed children's thinking in written strategies for fraction story problems. Discussions were guided by four prompts encouraging teachers to engage with the written work in different ways. Analysis of these video-recorded work sessions involved an iterative, constant comparison method in which I identified a variety of ways teachers expressed and pursued their curiosity about children's thinking. Also identified were conditions that supported the emergence of teacher curiosity, such as strategies that included puzzling features in children's problem-solving approaches and discussion prompts that encouraged teachers to generate specific follow-up questions for children. Findings offer both theoretical insights into teacher curiosity about children's thinking and practical guidance for strategic selection and use of children's written strategies to promote teacher curiosity and engagement with children's thinking. IRB-FY25-299

Davis, Alyssa

Poster # 5

CAS/Women's, Gender, and Sexuality Studies

2:00-3:00

Faculty Mentor: Dr. Lalenja Harrington

Arts & Humanities

Impact: Health and/or Safety

Retired Diagnoses: the Musical

Welcome to the ultimate "exit interview."

Retired Diagnoses is a new musical that explores the unspoken history and political power embedded in the labels we use for distress, identity, and behavior. In this darkly comedic "support group," the labels themselves—from Asperger's Syndrome to Homosexuality—finally take center stage.

What happens when we let these diagnoses talk back?

This project moves research out of the archives and onto the stage to explore how society decides what is "normal" and what is "disordered." By personifying these retired labels, the musical examines the cultural fears and political shifts that shaped our history. It challenges us to look closely at the power structures behind our medical manuels and the lasting impact psychiatric authority can have on human identity.

Through song and satire, Retired Diagnoses pokes at our preconceived notions about mental health and asks the vital question: Which of today's "truths" will be tomorrow's cautionary tales?

Dolphin, Shane

Poster # 19

HHS/Nutrition

2:00-3:00

Faculty Mentor: Dr. Clint Allred

Health Sciences

Kimberly F. Allred, Zachary S. Bomstein, Arul Jayaraman

Impact: Health and/or Safety

Phloretin is Protective Against DSS-Induced Colitis When Given as Symptomatic Treatment

Phloretin is a flavonoid present in commonly consumed foods including apples and strawberries. Ulcerative colitis (UC) is a chronic, intermittent, inflammatory disease of the colonic epithelia. Previous studies have demonstrated phloretins efficacy in ameliorating chemically induced colitis, however, these studies all began phloretin treatment before the onset of colitis. Given the intermittent nature of UC, our study sought to investigate whether phloretin is effective at ameliorating dextran sulfate sodium (DSS) induced colitis when delivered after the onset of symptoms. This treatment schedule is designed to mimic taking supplemental phloretin in response to an ulcerative colitis flare. We hypothesize that this modified treatment schedule will reduce the severity of colitis symptoms similar to prophylactic treatment. We saw that both prophylactic and symptomatic phloretin treatment groups saw a decrease in their disease activity index (composite score of colitis severity), colonic inflammation, and colonic injury compared to the DSS alone group. Important to our question, there was no significant difference in these measures between the two phloretin groups. These data suggest that phloretin could be an effective intervention for reducing the severity of ulcerative colitis symptoms.

Dortch Diaz, Mari

Poster # 70

HHS/Kinesiology

1:00-2:00

Faculty Mentor: Dr. Erin J. Reifsteck

Social Sciences, Education, & Business

YJ Seo, Jen Farrell, Jeff Milroy

Impact: Health and/or Safety

Collegiate Student-Athletes Overconformity to Sport Ethic

Collegiate student-athletes conform, sometimes unknowingly, to the “sport ethic,” defined by four values of accepting risks, striving for distinction, making sacrifices for the game, and refusing to accept limits (Hughes & Coakley, 1991). Overconformity to normative attitudes and behaviors within the sport ethic may promote athletic success but often come at the expense of student-athletes' well-being. Burnout is one salient well-being issue among this population that is receiving heightened attention (Glandorf et al., 2025). Key dimensions of burnout include sport devaluation, reduced sense of accomplishment, and emotional/physical exhaustion (Raedeke, 1997). This research explores the relationship between collegiate student-athletes' level of over conformity to the sport ethic and their self-reported symptoms of burnout (i.e., anxiety, depression) and previously identified risk factors of burnout (e.g., gender, exclusive athletic identity). Secondary data analysis was performed using a sample of student-athletes (n = 377) drawn from a larger study of National Collegiate Athletic Association (NCAA) institutions. Findings from this research can inform future efforts to mitigate burnout and promote overall well-being by helping athletes develop a holistic identity within systems that expect over conformity. IRB-FY26-262

Duah, Richard

Poster # 47

JSNN/Nanoscience

1:00-2:00

Faculty Mentor: Dr. Dannis LaJeunesse

Natural, Physical, & Mathematical Sciences

Impact: Innovation

***Nanmaterial Control Over Ergosterol Production in* Candida albican**

Invasive fungal infections caused by *Candida albicans* represent a growing global health risk due to increased antifungal drug resistance and limited therapeutic options to tackle the issue. In antifungal research, much emphasis has been on ergosterol, a fungal-specific sterol that ensures the integrity of the cell membrane and enhances its response to stress conditions. This ergosterol remains a primary target of current antifungal drugs. Changes in the ergosterol biosynthesis pathway increase fungal resistance, which results in a reduction in the effectiveness of existing drug treatment. Hence, novel options are essential. My dissertation investigates how nanoscale materials influence ergosterol biosynthesis in *Candida albicans* through mechanical interactions that control vital cellular processes like ergosterol biosynthesis. Distinct nanomaterials affect ergosterol gene expression differently. To systematically assess these effects, I constructed GFP-tagged ERG reporter strains of four genes encoding enzymes in the ergosterol biosynthesis pathway (ERG5, ERG9, ERG11, and ERG13) to monitor protein expression and localization in real time. I have characterized these reporter strains, using confocal microscopy, flow cytometry, and quantitative fluorescence assays. Ultimately, this work seeks a material-based approach to identify materials and conditions that control ergosterol production, minimizing biofilm formation, improving antifungal effectiveness, and designing the next-generation biomedical materials.

Dunlap, Kyle

Poster # 71

SOE/Special Education

2:00-3:00

Faculty Mentor: Dr. Micheline Chalhoub-Deville

Jane Swain

Social Sciences, Education, & Business

Impact: Educational

Developing a Self-Initiated Motor Development Observation Tool: Phase 1—Constructing an Integrated Validity Argument

Motor-development is foundational to healthy child development, yet observation tools focus on identifying delays rather than functionally supporting motor development. This project describes Phase 1, conceptual and structural development of a user-friendly observation tool, grounded in an integrated validity argument, to support caregivers, early educators/interventionists in safely supporting infants' self-initiated movement. Pre-existing motor milestone data (Pikler, 1988, 1971, 1968) and illustrated transitional postures (Pikler, 2006) were analyzed to define postural categories. These categories were synthesized into a structured observation format designed to support infant self-initiated movement (SIM) without directing or accelerating development. The resulting tool provides a practice-oriented observational framework for supporting infant free movement that is grounded in developmental data and theory and establishes a instrument for future pilot testing and integrated validation planning.

Fonville, Victoria

Poster # 20

HHS/Nutrition

2:00-3:00

Faculty Mentor: Dr. Maryanne Perrin

Health Sciences

Impact: Societal

Lactation and Human Milk Donation During Perinatal Bereavement

Perinatal death is a time of intense grief for the affected parents. After a stillbirth or neonatal death, many mothers may develop depression, anxiety and complicated grief. They are not expecting to experience lactation because there is no longer any baby to feed, but lactation does occur for many bereaved mothers. Currently, there is a lack of quantitative research describing the experience of lactation after infant loss, but qualitative studies suggest that bereaved mothers do continue to express milk for the purpose of donation and lactation care for this population is inadequate. The aim of this study is to characterize the lactation care, pumping practices and donation patterns of bereaved milk bank donors. A survey was created in Qualtrics using previously validated questions that were modified to fit a bereaved population. Four milk banks in the United States sent this survey to their bereaved milk bank donors and obtained quantitative information on the lactation care they received, their pumping practices and their donation patterns. Having this information will help improve lactation care for bereaved mothers and families so that each bereaved mother is able to choose the lactation option that brings the most healing to her loss. IRB-FY25-389

Fosuhene, Desmond

Poster # 72

CAS/Geography

1:00-2:00

Faculty Mentor: Dr. Bhuwan Thapa

Wenliang Li

Social Sciences, Education, & Business

Impact: Environmental

The Role of Nature-Based Solutions in Disaster Risk Reduction: Assessing Windbreaks and Crop Loss under Tornado and Wind Events.

Wind-related disasters, particularly tornadoes and windstorms, pose significant threats to agricultural productivity across the U.S. Midwest, a region responsible for a large share of global corn and soybean production. These events lead to substantial crop losses and economic vulnerability. Nature-based structures such as windbreaks have long been used to mitigate these impacts, yet their large-scale effectiveness remains insufficiently quantified. This study evaluates the role of windbreaks in disaster risk reduction by integrating NOAA storm events, USDA crop loss data, and windbreak distribution datasets. Using ArcGIS Pro and Python-based workflows, the research maps the spatial and temporal distribution of wind events, quantifies county-level crop damage patterns, and examines relationships between storm characteristics and indemnity losses. Spatial analyses, including Kernel Density and Local Moran's I, reveal distinct clusters of high damage and event frequency. However, correlation results indicate a weak relationship between storm magnitude and crop loss ($r = -0.07$), suggesting that magnitude alone is not a strong predictor of damage. These findings highlight the importance of spatial context and localized factors in shaping agricultural vulnerability. Overall, the study provides insights into the potential and limitations of nature-based solutions for enhancing agricultural resilience and informing disaster risk reduction strategies.

Fowler, Samwise — Poster # 73

HHS/Social Work — **2:00-3:00**

Faculty Mentor: Dr. RaMonda Horton — Social Sciences, Education, & Business

RaMonda Horton, Ryan Milligan, Laura Gonzalez, Melissa Floyd-Pickard — Impact: Social

Belonging and Mental Health: A multi-level approach to supporting students with IDD

Cultivating a sense of belonging in any community, especially among its marginalized members, requires a multi-level approach. This project seeks to address systemic gaps in mental health care for students with Intellectual and/or Developmental Disabilities (IDD), who are disproportionately vulnerable to stigma, co-occurring mental-health difficulties, ineffective health care communication, and other barriers to a sense of belonging (Mirzaian et al., 2024). This research study seeks feedback about Integrative Community Studies (ICS) students' experiences receiving mental health services offered at UNCG as a student with an Intellectual or Developmental Disability, with hope to gain insights that could improve care and overall patient-provider communication in those settings. Our research questions aim to identify whether and how those services minimize or eliminate barriers to mental health care and foster a sense of belonging at UNCG. We plan to use the findings from this study to create training materials for the student-clinicians working in those departments, and to develop coaching strategies for students with IDD to self-advocate in mental health care spaces, ultimately to improve their experiences when seeking mental health services offered at UNCG clinics and beyond. IRB-FY26-226

Fox, Glory — Poster # 74

SOE/Library and Information Science — **2:00-3:00**

Faculty Mentor: Dr. LaTesha Velez — Social Sciences, Education, & Business

Impact: Educational

Carolina Raptor Center Archives: An Intersection of Conservation and Library Sciences

Climate change, conservation, environmentalism, and sustainability can feel like overwhelming topics to engage with. Yet, these issues need to be met with urgency. Library science professionals are people who make knowledge accessible to the general public. One way to help society learn about sustainability for climate action is for library science professionals to preserve, organize, and share knowledge about the environment in an accessible way, reducing the overwhelming nature of these topics. As an archivist at the Carolina Raptor Center, I have been digitally preserving our archives of pictures, research, and publications that have sat untouched on the shelves of this nonprofit for years. Our team is in the process of making the archives more available to the public. When people visit our facility, they encounter our raptors who have been rehabilitated, giving them a firsthand look into the importance of wildlife conservation. Adding the archives to this immersive experience allows people to understand our history, our mission, and our ongoing contribution to the scientific and environmental community. A soon-to-be-launched display of the Carolina Raptor Center archives demonstrates how library science professionals can organize information that promotes conservation and environmental care.

Foxx, Hateya — Poster # 75

HHS/Human Development and Family Studies — **1:00-2:00**

Faculty Mentor: Dr. Stephanie Irby Coard — Social Sciences, Education, & Business

Kaitlin N. Quick, Rachel J. Boit, Bridget L. Cheeks — Impact: Social

Unspoken Spaces: Black-White Biracial Young Adult Voices on Race, Racism, and Racial Identity

The system of racial stratification within the United States, which views race as discrete and fixed categories, has historically placed the nuanced experiences of multiracial people on the margins (Atkin & Yoo, 2019; Harris, 2016). As the recognition of this population has grown (U.S. Census Bureau, 2021), research has begun to explore the unique experiences and challenges that multiracial individuals and families face. These challenges include being differentially socialized about their race within social contexts, malleability in racial identity, and experiencing racism and discrimination against numerous aspects of their identity. Thus, the current study examines the perspectives of Black-White biracial college students regarding their experiences with racial socialization, racial identity, and racism/discrimination. The sample consisted of 10 Black-White biracial college students (Mage = 19.8 years old) that participated in focus group discussions. The results from this study contribute to the broader literature by highlighting the ways in which biracial youth experience race and the meaning they derive from these experiences. The implications of this work emphasize the importance of families, schools, and local communities as contexts for intervention and support. IRB-FY24-239

Goodkin, Kathy — Poster # 6

CAS/English — **2:00-3:00**

Faculty Mentor: Dr. Karen Kilcup — Arts & Humanities

Impact: Cultural

Promised Land: Environmental Attitudes in Nineteenth-Century African American Women's Writing

How we think about our natural environments shapes how we make decisions about our shared world. Historically, scholarship about environmental attitudes has emphasized European-American writers. Nineteenth-century African American women wrote and published many works of poetry, fiction, and nonfiction that illustrate their thoughts about and experiences with the natural world. Much of this environmental content, however, has not been explored by scholars, perhaps because these writers often prioritize spiritual themes. By elevating the environmental content of African American women's writing, I seek to expand the record of environmental thought and correct false perceptions that people of color had less to say about the relationship between human beings and Nature. My source material, which includes works by Frances Ellen Watkins Harper and Amanda Smith, represents a body of attitudes about various environmental concerns, for example, equal access to natural resources and the sustainability of those resources, and human relationships to nonhuman animals. My research seeks to demonstrate a more comprehensive view of American attitudes toward the natural world, especially from those people who have deeply shaped American culture.

Green, Joseph — Poster # 76

BSBE/Business Administration — **1:00-2:00**

Faculty Mentor: Dr. Moses Acquaah
Jun "Michelle" Yang, Yonghong "Tracy" Liu

Social Sciences, Education, & Business
Impact: Scholarly

The Yin and Yang of Female Board Representation: Conditional Indirect Effects Through Monitoring and Risk-Taking on Firm Performance in TMT Firms

This dissertation examines how female board representation influences firm financial performance in Telecommunications, Media, and Technology (TMT) firms through two governance mechanisms, board monitoring intensity and firm risk-taking, and how these effects evolve with female director tenure. Framed through a Yin-Yang perspective, monitoring represents governance discipline (Yin), while strategic risk-taking reflects innovation and opportunity-seeking (Yang). Using a longitudinal panel design and a conditional indirect effects framework, the study tests whether female board representation affects performance indirectly through these mechanisms and whether director tenure conditions their effectiveness. Results indicate that while female board representation is associated with stronger monitoring, unconditional mediation effects through monitoring and risk-taking are limited. However, conditional analyses reveal that the effectiveness of governance mechanisms varies with director tenure, suggesting that female directors' influence strengthens as experience and legitimacy accumulate. These findings help reconcile mixed prior results by demonstrating that governance benefits are contingent rather than universal. The study advances corporate governance and gender diversity scholarship by integrating mediating mechanisms and moderating conditions within a unified framework and provides practical insights for boards seeking to balance oversight and strategic flexibility in high-velocity industries.

Habib, Irfat — Poster # 21

NURS/Nursing — **1:00-2:00**

Faculty Mentor: Dr. Cheryl Wicker

Health Sciences
Impact: Community Engagement

Bridging Faith and Healthcare: Integrating Faith Principles Into Advance Care Planning Education for a North Carolina Muslim Community

Advance Care Planning (ACP) is essential for ensuring medical care aligns with patient values, yet engagement remains disproportionately low within Muslim American communities due to unique cultural and religious barriers. This Doctor of Nursing Practice project implemented and evaluated a culturally tailored educational intervention to improve ACP knowledge and readiness within a North Carolina mosque community. A structured two-hour educational session was conducted at a mosque in Greensboro, NC, integrating Islamic perspectives on end-of-life care with the clinical and spiritual benefits of ACP. Participants completed pre- and post-intervention surveys measuring four domains: knowledge, comfort, intentions, and attitudes. Data were analyzed using Wilcoxon signed-rank tests to determine the intervention's impact. Results revealed statistically significant improvements with large effect sizes in both foundational knowledge ($Z=-2.49, p=.012, r=-.56$) and intentions to engage in ACP ($Z=-2.36, p=.012, r=-.54$). While baseline scores were established, improvements in comfort levels ($p=.707$) and attitudes ($p=.617$) were marginal, suggesting that affective shifts may require sustained engagement beyond a single session. By addressing specific religious and cultural barriers, this project successfully enhanced ACP literacy and readiness. These findings support community-based, culturally competent interventions as a powerful, scalable strategy to reduce health disparities and promote goal-concordant, end-of-life care among Muslim Americans. IRB-FY25-379_____

Hall, Alyssa

Poster # 7

CVPA/Musicology

2:00-3:00

Faculty Mentor: Dr. Amy Zigler

Arts & Humanities

Impact: Scholarly

A Strange Twist of Fate: Decoding the Musical Legacies of Elisabeth Cruciger and Katharina Schütz Zell

Although both Elisabeth Cruciger and Katharina Schütz Zell composed music for the early Lutheran church, their musical legacies diverged significantly. Upon publication, Cruciger's hymn immediately joined the canon of Lutheran hymnody and enjoyed centuries-long success, while Schütz Zell's hymnal was printed only once and quickly fell into obscurity. This study explores the causes of this discrepancy from musicological, historical, and sociological perspectives by examining primary sources from the writings of Martin Luther, Cruciger, and Schütz Zell, as well as drawing upon seminal literature in the field. A critical analysis of these materials reveals that bitter theological disputes, nationalistic musical standards, and patriarchal structures played key roles in the suppression of Schütz Zell's work. By contrast, Cruciger's untimely death and a longstanding case of misattributed authorship preserved her work for future generations, sparing her the besmirched reputation incurred by her counterpart. By comparing the musical legacies of these women within their social and ecclesiastical contexts, this study illuminates the challenges of female composers in the early Lutheran church and contributes to the limited bodies of literature on both women.

Hashemi Sohi, Hengameh

Poster # 22

JSNN/Nanoscience

1:00-2:00

Faculty Mentor: Dr. Dennis LaJeunesse

Hengameh Hashemi, Dennis LaJeunesse

Health Sciences

Impact: Health and/or Safety

From Green Synthesis to Machine Learning:Linking Plant Metabolites, Nanoparticle Structure, and Antimicrobial Power

Antimicrobial resistance (AMR) is a rapidly escalating global health crisis that threatens to undermine decades of medical progress. Silver nanoparticles (AgNPs) have emerged as powerful broad-spectrum antimicrobial agents, yet their conventional chemical synthesis often suffers from poor reproducibility, environmental toxicity, and limited biocompatibility. Green synthesis using biological extracts provides a sustainable alternative, but the lack of mechanistic understanding linking biological inputs to nanoparticle structure and function remains a major limitation.
This dissertation proposes an integrative framework that connects plant metabolomics, nanomaterial structure, and antimicrobial performance through predictive machine learning. Using duckweed (Spirodela polyrhiza) grown under controlled light conditions, I will systematically identify how light-modulated phytochemical profiles govern AgNP nucleation, growth, crystallinity, and antimicrobial efficacy. Advanced analytical techniques (HPLC, FTIR, TEM, SEM, MicroED, UV–Vis, zeta potential) will be combined with biological assays against Escherichia coli and *Candida albicans*. These multidimensional datasets will be integrated into machine learning models capable of predicting antimicrobial potency. This work will establish a rational, data-driven strategy for designing eco-friendly nanoparticles with optimized antimicrobial activity, bridging biology, nanoscience, and artificial intelligence.

Hibbard, Alice

Poster # 23

HHS/Kinesiology

1:00-2:00

Faculty Mentor: Dr. Louisa Raisbeck

Health Sciences

Impact: Health and/or Safety

Do Visual Attentional Focus Cues Influence Landing Forces? Insights From a Secondary Analysis of Workload and Ground Reaction Forces

Attentional focus plays a key role in shaping movement efficiency and motor performance, with external focus cues generally promoting more automatic and effective movement patterns compared to internal cues. While prior work has largely relied on auditory cueing, visual cues may offer a more intuitive and stable method for directing attention toward movement outcomes, particularly during dynamic tasks such as jumping.

As part of a broader study examining how externally focused visual cues influence jump-landing mechanics, this secondary analysis investigated whether perceived workload is associated with landing ground-reaction forces (GRF) across attentional focus conditions.

Spearman correlations indicated no association between perceived workload and GRF across conditions (? = -.07 to .07, all p = .82). A repeated-measures ANCOVA showed no main effect of workload on GRF, F(1,10) = 0.73, p = .41, and no Condition × Workload interaction. These findings suggest that landing mechanics remained stable across attentional focus conditions, independent of subjective workload. Future analyses should integrate workload, jump height, and kinetic variables to better understand how visual attentional cues shape performance and movement strategy within attentional focus frameworks. IRB-FY25-133

Hill, Blair

Poster # 48

JSNN/Nanoscience

2:00-3:00

Faculty Mentor: Dr. Suzanne Ahmed

Tahniat Afsari

Natural, Physical, & Mathematical Sciences

Impact: Innovation

Collective Behavior of Acoustically Propelled Nanorobots

Nanorobots can convert various forms of energy to mechanical motion. Nanorobots can be used for many sustainable industrial applications, including biomedical, oil, environmental, and crack repair detection. To accomplish these applications multiple nanorobots are needed and hence the ability to control their motion collectively is essential. Here we power nanorobot motion using acoustic fields in the ultrasound range. Metallic nanorobotic systems are produced using electrochemical deposition within porous anodisc templates. Nanorod robot dimensions are defined by the diameters of the pores and their length is defined by the duration of the deposition under a constant current.

Hughes, Ashley

Poster # 8

CAS/History

1:00-2:00

Faculty Mentor: Dr. Watson Jennison

Arts & Humanities
Impact: Social

Beyond Prostitution in the Crescent City:
Gender, Poverty, and Everyday Policing in New Orleans, 1850–1860

This thesis examines women's arrests in antebellum New Orleans to understand how urban policing developed through the criminalization of poverty and everyday disorder. While historians have often emphasized prostitution as the primary lens for interpreting women's encounters with the law, this study demonstrates that most women were arrested for offenses such as assault, vagrancy, drunkenness, and disturbing the peace. Using an original database of arrest records from the 1850s, the project analyzes patterns across city districts to reveal how policing practices disproportionately targeted poor white immigrant women and women of color.

Focusing on the intersections of gender, race, labor, and municipal authority, this research shows that women were central to the development of the urban South carceral systems. Arrest records, sentencing patterns, and newspaper accounts reveal how expectations of respectability shaped both accusations and punishment, and how community members participated in the regulation of marginalized women. By tracing these dynamics in one of the South's largest port cities, the project reframes the rise of the carceral city as rooted less in the regulation of vice than in the management of poverty. In doing so, it contributes to broader conversations about the historical foundations of inequality in the American criminal justice system.

Hung, Esther

Poster # 9

CAS/Creative Writing

1:00-2:00

Faculty Mentor: Dr. Holly Jones

Arts & Humanities
Impact: Social

The Pickled Mermaid & Other Stories: A Collection on Grief, Contentment, and Healing

This collection of short stories utilizes the speculative fiction genre to entwine science and emotions, exploring how human responses to grief and our desire for contentment are culturally and socially shaped—and structurally repressed. Inspired by Ted Chiang's thought experiments and conceit of science, this project brings to life a world in which mythological creatures such as phoenixes, mermaids, and fae are undeniably real, yet experienced by people as ordinary biological beings. This contrast between the mythical and the scientific seeks to juxtapose the human desire for a better reality with our contradicting desire to possess control and knowledge over their surroundings. Each story uses craft techniques including alternating narratives and speculative biology to address the social issues surrounding how we have been taught to repress grief and seek contentment at the cost of the world and the wellbeing of everyone around us, including ourselves. The goal of this project is to complicate the traditional formulas for success and coping to show how small shifts in our perspectives can alter how we view the world, our identities, and the values we find in one another.

Ishan, Rezaul Bari

Poster # 77

CAS/Geography

2:00-3:00

Faculty Mentor: Dr. Bhuwan Thapa

Social Sciences, Education, & Business
Impact: Environmental

Identifying Suitable Location for Siting EV Charging Stations for Multi-Family Housing Communities

The rapid growth of electric vehicle (EV) adoption in the United States has intensified demand for accessible and equitable charging infrastructure. While a significant proportion of EV charging occurs at home, residents of multi-family housing (MFH) face substantial barriers due to limited access to private charging facilities. However, there is no clear consensus in either the academic or professional literature on how best to address this critical infrastructure need. So, this study aims to develop a GIS-based suitability model to identify suitable locations for shared EV charging stations in multi-family housing areas within Greensboro, North Carolina. The study integrates parcel data of MFHs, existing public charger locations, and road network information within a weighted overlay model to identify priority sites for EV charging in multi-family housing areas. Key factors, including MFH concentration, distance to current chargers, and estimated EV charging demand, are standardized into a 0–10 suitability index to rank parcels for potential installation. The model evaluates current accessibility conditions and simulates potential improvements in MFH charging access under proposed sitting scenarios. The findings aim to develop a framework for equitable EV infrastructure planning at the municipal scale, contributing to both transportation sustainability and environmental justice objectives.

Issa, Maha

Poster # 78

HHS/Human Development and Family Studies

1:00-2:00

Faculty Mentor: Dr. Esther Leerkes

Social Sciences, Education, & Business
Impact: Social

Mothers Overcome Depressive Symptoms to Respond to Fussy Babies

How do mothers' depressive symptoms affect their capacity to respond to their babies - and how does that responsiveness differ in the context of babies that naturally tend to be fussy? During pregnancy and after birth, mental health is especially vulnerable, with many mothers experiencing depressive symptoms. These symptoms can put the developing relationship between mom and baby at risk. During the third trimester, 299 mothers recruited from the local community reported on their depressive and anxiety symptoms. At two and six months after birth, mothers reported their infant's negative emotionality, and mother-child interactions were observed during tasks designed to elicit distress in order to assess the mother's responsive caregiving. The results indicated that for mothers experiencing depressive symptoms, those with temperamentally fussier infants were still able to sensitively respond in distress contexts, compared to mothers with depressive symptoms whose infants are less fussy. Mothers of fussier infants may be able to overcome their symptoms to respond to their infant's most clear and urgent cues. This study contributes to a more nuanced understanding of how mental health affects parenting, bringing insight to the ongoing conversation regarding how we can target support for the critically important relationship between mother and baby. IRB-18-0198

J., Tiana

Poster # 79

HHS/Community Health Education

1:00-2:00

Faculty Mentor: Dr. Jeff Milroy

Social Sciences, Education, & Business

Impact: Health and/or Safety

Integrating A Health Education Capacity-Building Framework in Humanitarian Corridors

Every day, humanitarian aid workers face insurmountable challenges with a lack of supplies, rough conditions and imminent danger while being tasked with protecting the most vulnerable people in conflict zones. According to the UNHCR, over 117 million people are displaced worldwide due to conflict and violence causing an increased need for humanitarian corridors to provide safe passageway and movement of supplies.

This scoping review of existing literature examines the capacity-building principles of health education to identify how to incorporate them into a framework that enhances the effectiveness of humanitarian corridors. International laws and United Nations mandates are reviewed to ensure the framework meets the needs of international bodies overseeing humanitarian activities. Ultimately, the framework aims to improve humanitarian aid with concrete tools to enhance coordination, resilience, and protection within humanitarian corridors.

Jochim, Alex

Poster # 24

HHS/Kinesiology

2:00-3:00

Faculty Mentor: Dr. Jaclyn P. Maher

Health Sciences

Impact: Health and/or Safety

What Makes Older Adults Move? Exploring Intentions and Habits for Exercise Throughout the Day

Older adults often intend to be physically active, but those intentions do not always result in action. We studied how the relationship between intentions and physical activity changes throughout the day, and whether having strong habits helps turn intentions into activity. Two hundred older adults participated in a 1-year study with three separate two-week data collection periods. In each of these data collection periods, participants completed brief surveys a few times per day and wore activity monitors. Surveys asked about their intentions to be active over the next hour. Results showed that both intentions and actual activity tended to decrease as the day went on. Having strong habits was linked to more activity, especially in the afternoon and evening, but did not make intentions more likely to become actual behavior. Our results indicate that older adults' declining activity levels later in the day stem from declining motivation. Findings from this study could be used to personalize strategies to increase older adults' activity levels by encouraging physical activity when intentions are highest. IRB #20–0216

Kantner, Timothy

Poster # 25

HHS/Nutrition

2:00-3:00

Faculty Mentor: Dr. Keith Erikson

Health Sciences

Impact: Advancement

Evaluation of Non-heme Iron in the Context of a High Fat Diet

Iron is critical for a variety of biological functions. Non-heme serves as a potential marker for various disease states, including iron deficiency anemia, as it reflects the status of iron storage. This research examined the status of non-heme iron in the liver tissue of a mouse model fed a high-fat diet. The mice represented two strains, of which one is known to handle iron differently from the other strain. We used both males and females to also examine the effect of sex on iron biology. The results of our study will elucidate the impact that a high-fat diet plays in overall health.

Kesler, William

Poster # 80

SOE/Geography

1:00-2:00

Faculty Mentor: Dr. Bhuwan Thapa

Social Sciences, Education, & Business

Impact: Educational

Spatial and Temporal Patterns of Windbreaks and Wind-Related Crop Damages in Kansas, USA

Windbreaks are rows of trees that are planted on farmland or other properties to protect crops and infrastructure from wind damage. The goal of this study is to study the spatial and temporal patterns of windbreaks and high wind events. Using the case of selected counties in Kansas, the study will explore the spatial and temporal patterns of high wind events for the period of 2015 to 2020 and explore the distribution of windbreaks and wind-related crop loss across corn and wheat farms. The study will use windbreak data derived from USDA Forest Service, wind damage data from the USDA Risk Management Agency, and crop cover data from USDA CropScape. The study will analyze hotspots and cold spots areas of windbreaks, crop damages, and wind events. The study helps us better understand the role of windbreaks in managing crop loss for a larger geographical area.

Khan, Ajmal

Poster # 26

CAS/Biology

2:00-3:00

Faculty Mentor: Dr. Zhenquan Jia

Health Sciences

Ajmal Khan, Zhenquan Jia

Impact: Health and/or Safety

Multi-Omics Analysis Reveals Mechanistic Links Between Microplastics and Cardiovascular diseases (Atherosclerosis)

Atherosclerosis is a chronic inflammatory cardiovascular disease. Microplastics are environmental toxicants, and polystyrene microplastics (PS-MPLs) have been linked to endothelial dysfunction, oxidative stress, inflammation, and lipid dysregulation, yet underlying pathways remain unclear. We used an integrated multi-omics strategy to define PS-MPL–driven endothelial programs relevant to atherogenesis. Human aortic endothelial cells were exposed to 0.08 μm PS-MPLs (0 or 120 μg/mL). Uptake and localization were assessed by fluorescence microscopy, flow cytometry, and MitoTracker colocalization. Bulk RNA-seq identified differentially expressed genes and pathways and was compared with atherosclerotic plaque datasets. Epitranscriptomic profiling quantified RNA modifications by UPLC-MS, and untargeted LC–MS metabolomics captured metabolic remodeling. PS-MPLs were internalized and localized to mitochondria. Transcriptomics showed upregulation of vesicular trafficking/endocytosis and inflammatory signaling with NF-?B activation. Four hundred fifty-seven genes overlapped with plaque signatures, enriching focal adhesion, PI3K-Akt, and fluid shear stress/atherosclerosis pathways. PS-MPLs increased m1A, m5C, m3C, ? and altered their enzymatic modulators. Metabolomics highlighted oxidative-stress responses and sphingolipid, lipid, and amino-acid perturbations; integration identified arginine, lysine, and glutathione metabolism as central hubs. These findings indicate PS-MPLs disrupt endothelial homeostasis through convergent inflammatory, remodeling, and metabolic mechanisms, revealing biomarkers and targets for environmentally driven CVD.

KianvashRad, Nooshin

Poster # 27

JSNN/Nanoscience

1:00-2:00

Faculty Mentor: Dr. Dennis LaJeunesse

Health Sciences

Impact: Scholarly

Using Nanotechnology to Strengthen Antifungal Treatments

Antifungal drug resistance is a growing challenge in treating infections caused by *Candida albicans*. In this project, we explore how nanotechnology can help make existing antifungal drugs work better. Specially designed nanofiber materials were used to interact with fungal cells and influence their response to treatment. Our findings show that these materials can improve drug sensitivity, reducing fungal survival. This work highlights how combining nanotechnology with medicine may lead to more effective strategies for managing fungal infections.

Kicker, Darrell — Poster # 81

CAS/Geography — **2:00-3:00**

Faculty Mentor: Dr. Corey Johnson

Social Sciences, Education, & Business
Impact: Community Engagement

County boundaries and electoral integrity: Exploring the representational benefits of North Carolina's Whole County Provision

Gerrymandering is the practice of deliberately manipulating district lines to favor one party over others. In 2019, the US Supreme Court ruled that although partisan gerrymandering is inconsistent with democratic principles, it constitutes a political question beyond the reach of the federal judiciary. In the past year, several states have redrawn or are in the process of redrawing their district maps to gain partisan advantage before the 2026 midterms. Against this backdrop, North Carolina's "Whole County Provision" provides a practical structural constraint. The state constitution requires that counties remain intact when forming state legislative districts, so districts are formed from groupings of whole, contiguous counties. Splits are permitted only when necessary to satisfy population requirements. Existing research suggests that preserving county boundaries – along with modest flexibility in population deviation – substantially limits gerrymandering (Cervas and Grofman, 2020; Cover and Niven, 2021; Gladkova et al., 2019; Shahmizad and Buchanan, 2025; Wachspress and Adler, 2021; Winburn and Wagner, 2010). This poster illustrates the current state of gerrymandering in North Carolina by county using county splits and election results. I hypothesize that the Whole County Provision would significantly reduce opportunities for partisan manipulation in federal districting, resulting in more representative electoral outcomes.

Kier, Lexi — Poster # 82

HHS/Community Health Education — **2:00-3:00**

Faculty Mentor: Dr. Ana D. Sucaldito
Htay Meh, Marthalenar Nya Mar

Social Sciences, Education, & Business
Impact: Community Engagement

Beyond the Playbook: Building Culturally Responsive Mental Skills Training with Karenni Youth Athletes

Mental skills training is a widely used scientific approach in sport to support performance and mental well-being. This approach, however, was developed within Western contexts and may not fully account for the cultural and lived experiences of diverse athletes. This study aimed to develop and implement a culturally responsive mental skills curriculum for Karenni youth soccer players as part of Vah Meh Du, a mental health promotion intervention using a randomized crossover design. Our curriculum was developed using a community-engaged, iterative, and literature-informed approach. It included relationship-building with the team, needs assessments, and interactive sessions targeting cognitive restructuring, emotional regulation, problem solving, and social support. Ongoing feedback and observation from coaches and staff informed continuous adaptation throughout the 19-week implementation period.

Key insights highlight the importance of modifying psychological language, providing sport-specific skill activities, and prioritizing trust and relationship-building. Navigating differences in communication styles and cultural norms required intentional effort while flexibility and language barriers and varying levels of familiarity with and conceptualizations of mental health necessitated ongoing adaptation. Overall, these findings reinforced the need for reflexivity and cultural humility when implementing programming across contexts. and provide practical guidance for culturally responsive mental health interventions in sport. IRB-FY25-213

Koivisto, Henriikka

Poster # 10

CAS/English

1:00-2:00

Faculty Mentor: Dr. Karen Weyler

Arts & Humanities

Impact: Scholarly

The Politics of Flesh and Consumption in Horror Fiction and Its Precursors

This dissertation focuses on the politics of flesh and corporeal consumption in horror fiction and examines how our consumption of other bodies intersects with capitalist violence, sexual violence, and environmental destruction. Drawing on theoretical works such as Nancy Fraser's Cannibal Capitalism (2022) and Carol J. Adams' The Sexual Politics of Meat (1990), this dissertation argues that horror fiction allows us to reflect on how we consume the world and forces us to confront the bloody consequences of that consumption. Lastly, a close examination of corporeal consumption in horror fiction can help us imagine models of consumption that are more sustainable and informed by ethics of care.

Kshirsagar, Radha

Poster # 83

BSBE/Information Technology and Management

1:00-2:00

Faculty Mentor: Mr. Jon Clift

Social Sciences, Education, & Business

Impact: Societal

Why are Single Use Plastics Still Used in Household Supply Chains when Sustainable Alternatives Exist? How Can This Change?

Why are Single Use Plastics Still Used in Household Supply Chains when Sustainable Alternatives Exist? How Can This Change?

Although awareness about climate change and plastic pollution has grown, single-use plastics continue to fill our households because of the comfort, speed and convenience they offer in the busy routines. Every day, the choices made in kitchens, grocery carts and trash bins quietly shape the future of our planet.

This project asks a simple but urgent question, "Why are single use plastics still used in households when sustainable alternatives are available? " After identifying the reasons, it also focuses on the next steps of "How can we change this?"

The study focuses on an interesting idea of considering household chores as parts of a "Household Supply Chain" where making a grocery list is demand planning, deciding from where to buy is supplier selection, buying groceries is purchasing, storing is inventory. This research explores behavioral patterns for buying, using and dumping plastic in this supply chain. Rather than blaming, the project tries to understand people's realities and inspire practical and sustainable pathways towards change. It aims to show that protecting the Earth begins with simple choices made at home, one family at a time. Under Review

---

Lassiter, Ebonie

Poster # 84

SOE/Special Education

1:00-2:00

Faculty Mentor: Dr. Heather Coleman

Social Sciences, Education, & Business
Impact: Educational

Booked and Unbothered: What Future Teachers See in Our Schools

The limited research on implicit bias training and professional development for preservice teachers highlights a need to better understand how teacher candidates perceive issues of equity. This study examines those perceptions through preservice teachers' participation in a special education course designed to build foundational knowledge and skills for addressing the academic and behavioral needs of diverse learners, including students with disabilities. Participants also responded to prompts based on We Want to Do More Than Survive: Abolitionist Teaching and the Pursuit of Educational Freedom (Love, 2019). The purpose of this study is to explore preservice teachers' perceptions of inequities in schools and their views on teaching Black students.
Keywords: Implicit bias, Preservice teachers, Special education teacher preparation, Culturally relevant pedagogy IRB-FY24-253

Lomo, Marvin

Poster # 85

BSBE/Information Technology and Management

2:00-3:00

Faculty Mentor: Dr. Rahul Singh

Social Sciences, Education, & Business
Impact: Societal

The Dark Side Of SNS: The Mental Health Costs Of Algorithmic Personalization And Social Comparisons

While social networking sites (SNS) like Instagram and TikTok offer connectivity, they have increasingly become algorithmic, i.e., the content users engage with is recommended by algorithms. However, the information systems research community has undertheorized the impact of SNS recommender algorithms on SNS users often because these algorithms operate invisibly. This research-in-progress uses algorithmic personalisation, i.e., perceptions of algorithm responsiveness and insensitivity to elucidate the relationship between SNS use, SNS algorithms and the mental health outcomes of SNS users, through the lens of social comparison theory. We propose a model tested through a longitudinal survey of 300 U.S. students on algorithm-driven platforms, using structural equation modelling. This study aims to inform the design of ethical AI algorithms on SNS that mitigate harm and promote user well-being.

Lyons, Sophia

Poster # 86

SOE/Library and Information Science

2:00-3:00

Faculty Mentor: Ms. Sojourna Cunningham
Dr. Joanna Depolt, JLDEPOLT@uncg.edu

Social Sciences, Education, & Business
Impact: Communication

Faculty Perceptions of Undergraduates' Information Literacy Needs

While faculty and librarians both acknowledge that undergraduate students need information literacy skills, it is not clear which information literacy skills faculty believe students should have upon starting college and which skills undergraduates will develop during their time in college. Because this expectation gap isn't well articulated, students caught in the mismatch may struggle to succeed on college-level assignments. This study examines existing literature in the education and library and information science fields to identify information literacy skills that faculty perceive as fundamental for college readiness. Through fuller understanding of the information literacy skills that faculty consider as essential and baseline, postsecondary librarians can better address gaps between students' actual skills and needed skills; high school librarians, teachers and curriculum designers can also use the data to adjust learning objectives.

Mahanes, Margaret M.

Poster # 49

JSNN/Nanoscience

2:00-3:00

Faculty Mentor: Dr. Daniel Rabinovich
Moises J. Zelada Bazan

Natural, Physical, & Mathematical Sciences
Impact: Health and/or Safety

Developing New Magic Bullets: Targeting Cancer with Silver Compounds

Silver bioinorganic chemistry continues to attract attention due to its broad-spectrum antibacterial and anticancer properties. Most modern silver compounds studied for anticancer use are based on N-heterocyclic carbene (NHC) ligands, which stabilize Ag(I) and modulate its biological behavior. However, many of these complexes are either too reactive or too stable, limiting their biological utility. A major challenge is achieving the right balance—silver species must be stable enough to reach their biological target, but capable of controlled release of silver ions under physiological conditions. N-heterocyclic thione (NHT) and selone (NHSe) ligands provide an attractive alternative to NHCs as they are readily synthesized, air- and moisture-stable, and have a strong affinity for soft metal ions such as Ag(I), consistent with Pearson's Hard and Soft Acids and Bases (HSAB) principle. Preliminary work has shown that Ag(I) complexes with three or four NHT/NHSe donor groups tend to be overly stable resulting in minimal biological activity. Two-coordinate complexes may exhibit the optimal balance of stability and reactivity required for therapeutic effectiveness. This work describes the synthesis of low-coordinate silver(I) complexes stabilized by sterically demanding NHT/NHSe ligands, which may have the desired balance of stability and biological activity.

Mills, Felyssa Karla

Poster # 87

CAS/Geography

1:00-2:00

Faculty Mentor: Dr. Bhuwan Thapa

Social Sciences, Education, & Business
Impact: Environmental

Examining Kudzu patches on temporal and spatial scales along interstate 40 in Asheville North Carolina

This research project will investigate how Kudzu, an invasive weed in the United States, will continue to spread towards the Northeastern region due to warming temperatures and increased carbon dioxide concentrations. The objectives of this project is to create a time scale series that examines how Kudzu has spread over a period and a site suitability index to determine specific criteria that is optimal for Kudzu growth. While the entire Southeastern United States is dominated by Kudzu, the specific area of focus will be Interstate 40 in Asheville, North Carolina because of Kudzu's use for bank erosion control. The research utilizes python, an open-source software application, and uses supervised classification for species identification and a Normalized Difference Vegetative Index(NDVI) to create a change analysis over time. The data utilized for this project will be satellite imagery from Sentinel 2, Landsat, and MODIS platforms. Results display the growth of Kudzu from 1970 until 2025 and the specific qualifications to provide optimal Kudzu growth. Research on invasive species growth is necessary to protect natural and native biodiversity of the Southeastern region.

Mobley, Tamara

Poster # 88

HHS/Social Work

1:00-2:00

Faculty Mentor: Drs. Jeannette Wade & Andrea Lewis

Social Sciences, Education, & Business
Impact: Health and/or Safety

Reimagining Sex Education Systems for Black Female Youth: Lessons from Young Women's Narratives

Black women's sexual health decision-making is shaped long before adulthood by the messages they receive, and don't receive, within families, religious communities, and cultural contexts. Yet little qualitative research centers the voices of young Black women reflecting on how these early influences shaped their current sexual health knowledge and autonomy. This poster presents findings from four focus groups and one in-depth interview conducted with Black women aged 18–25 (N=27) in Greensboro, North Carolina, as part of the SHE Rises study, a community-based qualitative project examining sexual and reproductive health experiences. Using thematic analysis, we identified several themes across participants' experiences. This poster focuses on one, Inherited Sexual Scripts and the Reclamation of Agency, capturing how family modeling of traditional values, religious abstinence messaging, and cultures of silence around sexuality created a restrictive foundation that participants actively negotiate as emerging adults. Participants described navigating tension between inherited expectations and their own evolving beliefs, often without guidance from trusted adults. These findings underscore the need to reimagine sex education for Black female youth by equipping families, faith communities, and schools with culturally responsive frameworks that move beyond silence and fear-based approaches toward affirming, honest, and developmentally appropriate conversations about sexual health. IRB-FY24-318

Morley, Christy

Poster # 28

HHS/Nursing

2:00-3:00

Faculty Mentor: Dr. Susan Letvak

Health Sciences

Impact: Scholarly

Supporting Parents in Limbo: Pre-treatment Options Sought by Parents of Adolescents

Adolescents in the United States often face prolonged wait times for outpatient mental health services, placing families in a vulnerable period between help-seeking and treatment initiation. During this time, symptoms may worsen and increase the likelihood of emergency department use, settings that are frequently ill-equipped for psychiatric care. This descriptive study examined caregiver experiences while awaiting outpatient mental health services for adolescents and identified interim supports used, offered, and desired.

A survey was administered via Qualtrics to parents and caregivers of adolescents aged 12–17 years recruited through social media and National Alliance on Mental Illness affiliates (n = 38). Measures included wait times, emergency department utilization, interim resources provided, caregiver help-seeking behaviors, and perceived helpful interventions. Although most respondents waited less than three months for care, nearly 70% sought emergency department services prior to outpatient treatment. Caregivers commonly relied on internet searches, advocacy websites, schools, and social networks for support. Findings suggest a need to improve awareness of interim resources and expand school-based mental health supports to bridge gaps in care. IRB-FY25-136

Nelson, Kelly

Poster # 29

HHS/Genetic Counseling

2:00-3:00

Faculty Mentor: Dr. Rachel Mills

Health Sciences

Impact: Educational

Feasibility of All of Us Data for Genetic Counseling Student Research: A Pilot Study on Familial Hypercholesterolemia

The All of Us Research Program (AoU) is a national effort to promote precision medicine research by increasing access to genomic, health record, and survey data from diverse populations. Conducting research is often a requirement of Genetic Counseling (GC) master programs, but an increase in student-led projects over time and efforts to diversify GC research necessitates additional research methods. To investigate the feasibility of using the AoU database for student-led research, I conducted a pilot study examining perceptions of health and quality of life for individuals with the genetic condition Familial Hypercholesterolemia (FH). Data analysis was conducted in the AoU researcher workbench and integrated Jupyter notebooks. Overall, 810 participants with FH were on statin medications for cholesterol management, and 370 were not. I found that statin users have an increase in negative views related to both their health ($n=1,164$, $p<.05$) and quality of life ($n=1,155$, $p<.05$) compared to non-statin users. This small pilot study was conducted over three months, making it feasible for graduate student research. Therefore, GC and other graduate students may consider using AoU data to meet degree requirements while conducting research that may have outcomes that are impactful to precision medicine practice and future research.

Pandey, Arnav

Poster # 50

CAS/Biology

2:00-3:00

Faculty Mentor: Dr. Nick Ader

Natural, Physical, & Mathematical Sciences

Charlotte Shore, Kianna Satterwhite

Impact: Scholarly

Protecting the Cell's DNA: How Cells Control the Nuclear Barrier

In animal, plant, and fungal cells, the nuclear envelope separates the cell's DNA from the rest of the cell. While this protects DNA inside the nucleus, it presents a problem during cell division when cellular machinery normally outside the nucleus needs to separate DNA residing in the nucleus. In my lab, we study fission yeast Schizosaccharomyces pombe, which creates a hole in its nuclear envelope to allow construction of machinery necessary to segregate DNA into two daughter cells during normal growth. This hole is held in place and eventually sealed by a cascade of spiral-like proteins, known as ESCRT-IIIs. Our lab's previous work demonstrates that these ESCRT-IIIs are necessary to maintain the nuclear compartment during cell division, preventing mixing of nuclear and other cellular components that can potentially cause damage to or unequal distribution of genetic materials. However, what happens to this barrier when S. pombe undergoes sexual reproduction and spore formation during nutrient starvation is unknown. Using live-cell fluorescence microscopy of S. pombe, we found that ESCRT-III machinery is involved in maintaining compartmentalization during this process as well. Studying this process provides insights into how the disruption of this barrier can cause reproductive infertility and genetic disorders in humans.

Pasupathi, Praveen

Poster # 30

HHS/Kinesiology

2:00-3:00

Faculty Mentor: Dr. Eric Drollette

Health Sciences

Eric S. Drollette

Impact: Health and/or Safety

Effects of health behaviors on neurocognition and state anxiety in children

Childhood anxiety is associated with disrupted cognitive performance including performance monitoring, indexed by a neural marker known as the error-related negativity (ERN) event-related potential (ERP). In adults, health behaviors of mindfulness and exercise influence state anxiety symptoms and ERN. However, their acute effects in children remain unexplored. Using a within-subject design, children (n=36) completed 10-minute sessions of mindfulness meditation (MM), high-intensity interval exercise (HIIE), Mindful HIIE (MHIIE), and seated rest. ERN amplitude and post-error behavioral performance were assessed using a flanker task administered before and after each session, alongside self-reported state anxiety. ERN amplitude increased from pre- to post-test following MM, with smaller increases following MHIIE and HIIE, and no change following rest. Post-error performance (accuracy and reaction time) improved only following MHIIE. State anxiety decreased following MM and rest but increased after both exercise conditions. These findings suggest that brief MM may acutely enhance neural indices of performance monitoring while simultaneously reducing state anxiety, whereas MHIIE may preferentially benefit behavioral adjustment following errors. Contrastingly, HIIE alone may transiently elevate state anxiety in children. Together, the results indicate that different health behaviors exert distinct and dissociable effects on neural monitoring, behavioral regulation, and affective state during a sensitive developmental period. IRB-FY25-301

Peebles, Julianne — Poster # 89

CAS/Psychology — **2:00-3:00**

Faculty Mentor: Drs. Janet Boseovski & Stuart Marcovitch — Social Sciences, Education, & Business

Impact: Health and/or Safety

"My Body Does So Much for Me": How 8- to 10-Year-Old Girls in Dance Feel About Themselves and Their Bodies

Between 8 and 10 years of age, girls begin to think about themselves and their bodies more negatively. Girls who dance also feel sport-related pressure to be thin. Because of this, 8- to 10-year-old girl dancers are at risk for feeling distress about their bodies. However, dance may also encourage healthy body image, like feeling love for the body and what it can do. In this study, 103 8- to 10-year-old girl dancers shared their views about themselves, their bodies, and dance. Participants attended dance studios that either did or did not offer competition teams. Participants' negative attitudes about their bodies were typical for their age. Participants had high self-esteem, respected their bodies and abilities, and connected strongly with dance. Participants who danced for more hours per week felt less shame about their bodies and more love for their abilities. Dance may build healthier body image for young girls by emphasizing what the body can do, not how it looks. Additionally, older competition-studio dancers worried more about how they looked to others. Competition dance studios may be less beneficial for girls' body image. Girl dancers may be sensitive to being judged on their dancing or compared to their peers. IRB-FY24-271

Pinson, Kimaria — Poster # 90

SOE/Library and Information Science — **1:00-2:00**

Faculty Mentor: Dr. Nicole Shanley — Social Sciences, Education, & Business

Impact: Educational

Find Your Tech Path: A Skill-Based Career Guide

Many people ages 17–35 are interested in working in tech but are unsure where to start or which jobs fit their skills. Big Tech Pathways is a website prototype designed to help people explore tech careers in a clear and simple way. The site helps users understand how their soft skills and hard skills connect to different tech roles and shows possible career paths that may be a good fit for them. Instead of overwhelming users with technical language or long lists of requirements, the platform focuses on plain explanations, skill matching, and realistic next steps. The final project will be a working prototype that shows how users move through the site, explore career options, and narrow down paths that match their strengths and interests. Feedback and basic usability data will be used to see whether the site helps users feel more confident and clear about their tech career options.

Porter, Cynthia

Poster # 51

CAS/Biology

1:00-2:00

Faculty Mentor: Dr. Yashomati Patel

Natural, Physical, & Mathematical Sciences

Impact: Scholarly

The Effect of Naringenin on Insulin Resistant Adipocytes

Obesity currently affects over 40% of the adult population in the United States and millions of children nationwide. Insulin resistance is a serious health complication of obesity leading to metabolic diseases. As the prevalence of obesity increases, the need for alternative treatments that are safe and effective is critical. Previous studies have recognized naringenin, a natural citrus flavanone, for its ability to regulate glucose and lipid metabolism. The aim of this study was to determine naringenin's effects on the glucose and lipid metabolism in mouse fat cells (adipocytes). Whereas previous studies have been conducted in insulin sensitive models showing naringenin's ability to prevent lipid accumulation (weight gain), we have investigated the role naringenin has on lipid metabolism and glucose uptake in insulin resistant adipocytes. This research will advance our understanding of how naringenin can affect the lipid-laden insulin resistant adipocytes that are present in metabolic disorders such as obesity and type II diabetes and justify the possibility of using naringenin as a natural treatment for weight loss and alleviate symptoms of type II diabetes.

Powell, Alicia

Poster # 31

HHS/Community Health Education

1:00-2:00

Faculty Mentor: Dr. Erica Payton

Caleb Glenn, Dr. Erica Payton

Health Sciences

Impact: Health and/or Safety

Redlining, White Flight, and Church White Flight: How Segregation Shaped Greensboro's Neighborhoods

This literature review examines how the historical housing practices of redlining, white flight, and church white flight have shaped the current racial and geographical landscape of Greensboro, North Carolina. Using a systems-thinking approach, the literature review analyzes how federal policies, racially restrictive covenants, suburban migration, and institutional relocation patterns produced long-term inequities in housing, education, wealth, and community infrastructure. Historical documents, HOLC maps, and peer-reviewed literature were synthesized to trace the relationships between discriminatory policy, wealth gaps, urban disinvestment, and current disparities. The literature review analysis revealed the consequences of redlined neighborhoods, which included chronic underinvestment, environmental vulnerability, and concentrated poverty, while white flight and church relocation accelerated suburbanization and reinforced divisive civic institutions. These historical forces continue to influence modern patterns of segregation, access to resources, and public health outcomes. Understanding these structural drivers is essential for designing equitable housing policies, zoning reform, and community-centered redevelopment. This work highlights the need for cross-sector collaboration and advocacy through faith communities, public health practitioners, and local policymakers to dismantle the legacy of residential segregation and advance housing justice in Greensboro.

Rajapaksha, Kavindu

Poster # 52

JSNN/Nanoscience

2:00-3:00

Faculty Mentor: Dr. Jianjun Wei

Natural, Physical, & Mathematical Sciences
Impact: Environmental

Tracking Forever Chemicals: A Sensor Platform to Monitor PFAS and Safeguard Health and Ecosystems

Per- and polyfluoroalkyl substances (PFAS), often referred to as "forever chemicals," are used in many industrial and commercial products and frequently found in drinking water and food. PFAS persist in the environment for a long time and are connected to serious health risks. There must be rapid, precise, and inexpensive methods to detect them at low concentrations. This study seeks to answer the question: how can a highly selective and sensitive sensing platform be used to find PFAS in water more quickly and easily? The present ways to find PFAS are costly, take a long time, and need specific labs. This study develops a sensor that uses molecularly imprinted polymers (MIPs), synthetic materials designed to recognize specific molecules, and surface-enhanced raman spectroscopy (SERS), a powerful technique that enhances molecular signals. The MIP functions as a "molecular lock" by selectively capturing PFAS, whereas SERS provides a strong, quantitative signal for its detection.A portable, selective sensor could help protect public health by facilitating earlier monitoring of conditions and enabling timely action interventions. This study is part of an ongoing effort to develop next-generation chemical sensors that are both highly selective and useful in real-world applications. Protecting ecosystems through faster, selective PFAS detection.

Ratnasari, Baiq

Poster # 53

CAS/Chemistry

1:00-2:00

Faculty Mentor: Dr. Nicholas Oberlies

Natural, Physical, & Mathematical Sciences
Impact: Health and/or Safety

Baiq Desy Ratnasari, Huzefa A. Raja, Tyler N. Graf, Cedric J. Pearce, and Nicholas H. Oberlies

A Molecular Heist for Anti-Cancer Drug Leads from Fungi: Bioassay Guided Isolation

The global burden of cancer continues to rise, increasing the demand for new and effective anti-cancer drugs. Nature has long been a reliable source of drug leads, and fungi represent a particularly valuable yet underexplored resource. Often described as nature's chemical factories, fungi produce a wide range of bioactive compounds, many of which have shown activity against breast and melanoma cancer cells. In addition to their chemical diversity, fungi are widely available in the environment and can be readily regrown in the laboratory, enabling large-scale studies.
From 168 fungal samples 28 showed measurable cytotoxic activity, leading to the isolation of several pure compounds of interest. This work shows how we prioritize fungal cultures for further evaluation. Additionally, it shows how bioactive compounds are isolated and elucidated from extracts.

Ray, Kylar — Poster # 91

CAS/Women's, Gender, and Sexuality Studies — **2:00-3:00**

Faculty Mentor: Lecturer, Costume Studies Tara Webb — Social Sciences, Education, & Business

Impact: Environmental

North Carolina's Natural Grocery with a look at UNCG's Pantry

In the Fall of 2025, millions of Americans across the country lost access to government funded food insecurity resources (SNAP, EBT, WIC, etc.), with 1.4 million of them being North Carolinians. Evidence suggests that around 20% of students (1 in 5) will experience food insecurity during their time at UNCG. Taking an intersectional lens and drawing from crip*, anarcho-queer, and Black feminist thought, this project envisions moving away from the systems that created and perpetuate food insecurity by educating the campus community about fruit bearing and native plants on UNCG's campus. This study assess the resources that are already present to (re)remember how to listen to the seasons, taking only what we need and leaving the rest. What has been left behind and forgotten; what can be created from what's already around us, natively, naturally, and waiting? I posit that campus' environmental autonomy influence students' well-being through connection to land, nature, and food. At the end of the day, everyone's gotta eat - what do we do when there's nothing at the store or no money to buy anything? Mapping the acorn, pawpaw, and honey locust not only provides nourishment but also co-cultivates community towards a more equitable future.

Reid, Karysha — Poster # 32

NURS/Nursing — **1:00-2:00**

Faculty Mentor: Dr. Connor Sullivan — Health Sciences

Impact: Health and/or Safety

Antibiotic Stewardship: An Evaluation of Trends in 2Antibiotic Use and Resistance

The surge of antimicrobial resistance (AR) and multidrug-resistant organisms (MDROs) is a looming public health concern. This project addresses concerns about appropriate antibiotic use. Specifically, whether current policies and practices align with clinical practice guidelines (CPGs). Using the Johns Hopkins Evidence-Based Practice (EBP) model, I reviewed recommended CPGs for prophylactic antibiotic selection and use and compared them with current practices for patients undergoing cardiac implantable electronic device (CIED) procedures. The exploration of trends in antimicrobial use and resistance, using longitudinal data from the CDC, is used as an indicator of public health status. A review of federal medical center polices (MCPs), SOPs, and the Surgical Prophylaxis Protocol indicates alignment with CPGs. Findings from a clinical needs assessment indicate that clarifying medical center policies (MCPs), SOPs, and providing continued education on antibiotic stewardship practices may improve adherence to best practices. Future recommendations include investigating pre- and post-intervention trends in the local antibiogram regarding prophylactic combination therapy, with vancomycin, among patients undergoing CIED procedures.

Richardson, Kassandra

Poster # 92

BSBE/Economic Analysis

2:00-3:00

Faculty Mentor: Dr. Timothy Moreland

Social Sciences, Education, & Business
Impact: Economic

Transmission of Monetary Policy through Credit Unions

This paper investigates how credit unions respond to monetary policy shocks, relative to banks' response. Using National Credit Union Administration (NCUA) 5300 call reports and Federal Deposit Insurance Corporation (FDIC) bank call reports, we analyze the impact of monetary policy changes on loan supply. Through the use of Home Mortgage Disclosure Act (HMDA) loan-level data, we uniquely identify loan supply from loan demand to better understand the underlying mechanism in the simultaneous movement of supply and demand. We also take into consideration credit union location by accounting for credit unions' typical financial state, allowing the results to focus on financial changes within an institution. By investigating the difference between credit unions and banks, we can better understand the impact of monetary policy changes, specifically interest rate changes, on households' access to loans. As well, since the demographics of credit union users differ from the general population, our results shed light on the distributional consequences of monetary policy.

Rusden, Nicole

Poster # 54

CAS/Geography

1:00-2:00

Faculty Mentor: Dr. Rick Bunch

Natural, Physical, & Mathematical Sciences
Impact: Environmental

Defining the Boundary of the Southeast Warming Hole

This study investigates the spatial and temporal boundaries and causes of the Southeastern United States Warming Hole. Some literature indicates that the Southeast warming hole occurred from 1940–1979 (Kunkel et al. 2006), while others say it was from 1950–1970 (Banerjee et al. 2017; Mascioli et al, 2017), or 1950–2000 (Meehl et al. 2015; Eischeid et al. 2023), or even 1975–2000 (Pan et al. 2004). The objective of this study is to define the spatial and temporal boundary(ies) of the Southeast Warming Hole (SEWH) for each astronomical season, examine what factors may be influencing the warming hole, and to analyze spatio-economic aspects to this climate anomaly using data from 1895–2024 to encapsulate all the possible time frames. Methods that will be used include data management, hotspot analysis in a Geographic Information Systems (GIS), and mapping.

Rutan, T Caleb — Poster # 33

NURS/Nursing — **1:00-2:00**

Faculty Mentor: Dr. Lisa Anders — Health Sciences

Impact: Health and/or Safety

Opening the Black Box of Implementation: How Nurse Leaders Navigate EBP/QI Change

Background: Evidence-based practice (EBP) and quality improvement (QI) implementation is integral to delivering high-quality patient care. Nurse leaders are the linchpin in this work, yet their preparation and support vary widely. Heavy workloads and competing priorities further complicate efforts to sustain change.

Purpose/Aims: This pilot study explored how nurse leaders approach EBP/QI implementation, what helps or hinders their efforts, and how prepared they feel for this work.

Methods: Three acute-care nurse leaders participated in one-hour, semi-structured interviews. Transcripts were thematically analyzed for patterns in implementation experiences, decision-making, and support needs.

Results: Leaders primarily learned implementation skills on the job. They used existing data sources—incident reports, dashboards, and/or national standards—to identify problems and monitor progress. Implementation strategies tended to reflect familiar tools. Barriers included limited time, staffing constraints, documentation demands, and difficulty maintaining focus long enough for practices to become routine. Facilitators included executive support, Clinical Nurse Specialist (CNS) partnership, workflow-aligned solutions, and low-cost innovations.

Discussion: Findings reveal a gap between organizational expectations and the formal preparation leaders receive for implementation work.

Conclusion/Implications: Strengthening role-specific training, expanding access to CNS and analytic support, embedding real-time audit tools, and providing protected time may enhance nurse leaders' capacity to sustain change. IRB-FY25-436

Sainzorigt, Munkh-Orgil — Poster # 55

CAS/Biology — **2:00-3:00**

Faculty Mentor: Dr. Bryan S. McLean — Natural, Physical, & Mathematical Sciences

Gut architecture and its impact on microbial diversity — Impact: Environmental

The gastrointestinal tract presents a series of biochemically distinct habitats, yet most studies treat the gut as a single environment when testing relationships between host morphology and microbial diversity. Using wild deer mice (Peromyscus maniculatus) sampled across four seasons, we characterized bacterial communities from three gut sections (small intestine, cecum, large intestine) to test whether gut morphology predicts alpha diversity, community composition, and metacommunity structure. Gut section dominated all analyses, explaining 11.8% of compositional variation and driving strong diversity gradients (cecum > large intestine >> small intestine). The small intestine acted as an environmental filter: communities were less diverse, more variable among individuals, and largely nested subsets of cecal and large intestinal communities. Tissue density–diversity relationships were section-dependent: greater structural investment in the small intestine predicted lower diversity (consistent with intensified filtering), while the opposite trend emerged in the large intestine (consistent with species–area effects). Most taxa (68.6%) were transient, with only one section-specific specialist detected; neutral models indicated strong stochastic assembly in the cecum and large intestine but deterministic filtering in the small intestine. These results demonstrate that gut morphology effects on microbiomes are fundamentally context-dependent, and that spatial heterogeneity within hosts must be considered when testing host–microbe relationships. _____

Schorr, Veronica

Poster # 11

CAS/English

2:00-3:00

Faculty Mentor: Dr. María Sánchez

Arts & Humanities

Impact: Scholarly

ODD WOMEN: THE STORY PAPER, a (Re)imagining of Fern, Mena, and Zitkála-Šá in the 21st Century

Mid-to-late 19th and early 20th century female writers were constrained by gender roles, the expectations of the publications in which they published their work, the assumptions of the publication's respective audience, and the genre(s) in which they wrote. Some authors, like Fanny Fern—those restrictions notwithstanding—could assume her readers were her peers; others, like María Cristina Mena and Zitkala-Sa, could not. ODD WOMEN is a contemporary "story paper" that aims to (re)imagine a publication where these limitations are alleviated, or at least lessened to the extent that present-day society grants female authors a wider readership and less restrictions on content and form. The purpose of this publication is to show that, were Fern, Mena, and Zitkala-Sa alive and writing today, they would be able to more directly address the issues their work contends with, namely: class, gender, race, and identity. Importantly, ODD WOMEN also aims to show how the authors might approach writing about these issues today, all of which are as essential to the fight for women's rights now as they were in the 1800s-1900s. This project is an experimentation in scholarly imagination that engages both creative and analytical modes - modes often divorced from one another within academia.

Sedeafor, Richard

Poster # 34

JSNN/Nanoscience

2:00-3:00

Faculty Mentor: Dr. Kerui Wu

Health Sciences

Sindhu Yalavarthi, Yusif Abdul-Rashid, Morgan Gyger, Zahra Sabet, Jordan Mack, Kerui Wu

Impact: Health and/or Safety

The Role of the Microbiota in Response to Immune Checkpoint Inhibitors in Cancer Treatments

Introduction: Non-small cell lung cancer (NSCLC) is the most common type of lung cancer and a leading cause of cancer deaths worldwide. Although immune checkpoint inhibitors (ICIs), an immunotherapy-based cancer treatment, have improved survival, only a subset of patients respond effectively. While microbes in the gut have been shown to modulate ICIs outcomes, the role of resident microbes in the lungs remain poorly understood.

Research Objective: This study investigated how resident microbes in the lungs influence response to ICIs in NSCLC patients who previously received chemotherapy.

Experimental Methods: Lung tissue samples were collected and analyzed by sequencing for lung microbiota profiling and RNA sequencing was performed to assess host gene expressions.

Results: Both Responder and non-responder groups were enriched with four distinct microbial species. Kaplan-Meier analysis revealed that microbial enrichment in responders was significantly associated with improved patient survival outcomes. Immune pathways analysis further associated improved patient survival with upregulation in cytokine signaling pathways.

Conclusion: Enrichment of specific microbial species in responders prolonged patient survival and enhanced immune activation, highlighting the lung microbiome as a potential modulator of ICIs efficacy in NSCLC patients. IRB-FY26-123

Sedi-Johnson, Satta

Poster # 35

HHS/Community Health Education

2:00-3:00

Faculty Mentor: Dr. Ana Dominique Sucaldito

Health Sciences

Sharon Morris

Impact: Health and/or Safety

A Trauma-Informed, Survivor-Led Approach to Addressing Human Trafficking and Domestic Violence in Guilford County, North Carolina

Guilford County, North Carolina, is ranked ninth nationally for human trafficking, a crime that intersects with domestic violence through coercion, force, fraud, and abuse, and affects 24.9 million people globally. Family Service of the Piedmont (FSP) used a trauma-informed, cross-sectoral training framework to deliver six workshops and conferences, both local and international, on human trafficking. Efforts integrated advocacy, case management, prevention, education, and community partnership, and targeted hospitality employees and immigrant youth. Collaborators included international partners (e.g., Women in Agriculture and Bliss Foundation of Liberia), public health agencies, legal professionals, universities, immigrant-serving organizations, and local law enforcement. Knowledge (e.g., human trafficking indicators and available resources) and confidence were measured using a combination of Likert-scale and open-ended questions.

506 individuals attended across all six events. 83% (n=302; N=363) of hospitality employees and 65% of international attendees (n=68; N=105) reported increased knowledge of trafficking indicators and resources, while 100% of immigrant youth (N=40) reported increased confidence in recognizing human trafficking warning signs. A stakeholder's assessment of the partnership, however, revealed only moderate familiarity with domestic violence services, highlighting ongoing coordination gaps. Findings indicate that structured, cross-sector training strengthens early identification capacity in high-risk communities and highlights ongoing system-level coordination challenges.

Sendek, Temesgen

Poster # 56

CAS/Biology

2:00-3:00

Faculty Mentor: Dr. Ayalew Osena

Natural, Physical, & Mathematical Sciences

Impact: Technological

Comparative transcriptome-based identification of seed size regulatory genes in Eragrostis tef

Tef (Eragrostis tef (Zucc.) Trotter) is a climate-resilient C4 cereal valued for its superior nutritional profile, including high levels of essential macro/micro-nutrients, antioxidants, and gluten-free. However, it has extremely small seed size–the smallest among cultivated cereals–limits productivity and wider adoption. Our lab analysis of 189 tef accessions revealed substantial natural variation in grain-area (0.40–0.67 mm^2). In this study, we conducted comparative transcriptome profiling of the largest (PI494370) and smallest-seeded (PI494453) accessions across four developmental stages to identify genes underlying seed size determination. Pairwise differentially-expressed-gene (DEGs) analyses at four developmental stages revealed 13, 601, 1069 and 9200 DEGs at before flowering (BF), at flowering (AF), 2-weeks after flowering (2WAF) and 4-weeks after flowering (4WAF), respectively. Across the comparisons, a progressive increase in number of DEGs was observed from early to late stages. DEGs identified at AF and 2WAF stages have role in seed development-related pathways such as nutrient transport and storage, hormone signaling, ubiquitin–proteasome, cell expansion and proliferation and cell wall remodeling. This study provides insights into the transcriptional regulation of seed size in tef and identifies candidate genes for functional validation and crop improvement, offering valuable genomic resources for yield enhancement through molecular breeding and biotechnology.

Shah, Tariq

Poster # 57

BSBE/Biology

1:00-2:00

Faculty Mentor: Dr. Ayalew Osena

Natural, Physical, & Mathematical Sciences

Tariq Shah, Ayalew Ligaba Osena

Impact: Environmental

Silicon-Mediated Salinity Tolerance in Soybean

Salinity stress severely restricts plant growth by disrupting ion homeostasis and inducing oxidative damage. Silicon (Si) has emerged as a beneficial element capable of enhancing plant tolerance to abiotic stresses, yet its role in coordinating antioxidant defense and ionic regulation under salinity remains incompletely understood. In this study, we investigated the effects of Si supplementation on plant growth, morphology, antioxidant responses, and sodium (Na?) accumulation under saline conditions. Salinity significantly reduced plant growth and altered morphology, accompanied by elevated Na? accumulation and oxidative stress. Silicon application markedly improved growth performance and morphological characteristics under salinity stress. These improvements were associated with enhanced activities of antioxidant enzymes, indicating improved capacity to mitigate salinity-induced oxidative damage. Furthermore, Si supplementation reduced Na? accumulation in plant tissues, suggesting improved ionic homeostasis. Increased Si content in treated plants confirmed effective uptake and accumulation of applied Si. Overall, the results demonstrate that Si enhances plant tolerance to salinity stress through coordinated regulation of antioxidant defense systems and Na? homeostasis, leading to improved growth and morphological stability. These findings highlight the potential of Si as a beneficial strategy for improving plant performance under saline environments.

Sheets, Anna

Poster # 58

JSNN/Nanoscience

2:00-3:00

Faculty Mentor: Dr. Tetyana Ignatova

Natural, Physical, & Mathematical Sciences

Impact: Advancement

Laser Powered Glow Ups: Preparing MoS2 for Tough Environment Sensing

Atomically thin semiconducting materials, like molybdenum disulfide (MoS2) are promising building blocks for lightweight, flexible, nearly invisible platforms for next-generation sensors. These materials can be engineered so their properties change in response to specific chemicals or environmental hazards, making them promising candidates for technologies that protect soldiers, industrial workers, and firefighters. My research focuses on how laser light can be used to strengthen and stabilize the emitted light signal from MoS2 when it is illuminated. By carefully adjusting the laser power and exposure, I show how the material's optical response can be improved in a controlled and repeatable way. These changes come from subtle rearrangements in the material's structure, which make the emitted signal clearer and easier to detect. While my project focuses on enhancing the optical performance rather than detecting specific hazards, prior studies have shown that MoS2 can function in applications ranging from artificial retinas to chemical analyte sensing. By strengthening the optical signal these materials produce, my work helps lay the groundwork for transparent, flexible sensors that could one day detect harmful chemicals or environmental hazards in real time.

Sheikh, MD. Hasan — Poster # 93

BSBE/Consumer, Apparel, and Retail Studies — **2:00-3:00**

Faculty Mentor: Dr. Jin Su

Social Sciences, Education, & Business

Impact: Scholarly

Supply Chain Integration and Resilience: Review of the Literature and The Implications for the Bangladeshi Apparel Industry

Bangladesh's apparel industry, the world's second-largest garment exporter, confronts escalating supply chain vulnerabilities arising from pandemic-induced disruptions, tariff volatility, and intensifying regional competition. This study systematically reviews 83 empirical studies—36 on supply chain integration and 47 on supply chain resilience—to synthesize theoretical intersections and establish their implications for Bangladesh's readymade garment sector. Grounded in resource dependency theory and dynamic capability theory, the review conceptualizes supply chain integration as a mechanism through which firms secure critical external resources via inter-organizational partnerships, and supply chain resilience as a higher-order dynamic capability enabling disruption anticipation, adaptation, and recovery. The synthesis demonstrates that integration—encompassing internal, supplier, and customer dimensions—strengthens proactive, adaptive, and restorative resilience through enhanced resource access, real-time information sharing, and collaborative planning. Yet, empirical investigation linking multidimensional integration to multidimensional resilience remains conspicuously absent, particularly within export-dependent apparel manufacturing contexts characterized by buyer-driven governance and nascent digital transformation. A conceptual framework is advanced proposing directional relationships between three integration and three resilience dimensions, moderated by digital technology adoption. Theoretically grounded propositions address identified empirical gaps, contributing to supply chain management scholarship while offering actionable insights for Bangladeshi manufacturers and policymakers building globally competitive, disruption-resistant supply chains.

Shirley, Olivia — Poster # 59

CAS/Chemistry — **2:00-3:00**

Faculty Mentor: Dr. Jason Reddick

Natural, Physical, & Mathematical Sciences

Impact: Advancement

Exploring the functional activity of a novel aromatic prenyltransferase from Penicillium italicum

The fungus Penicillium italicum is known to cause gray and blue mold rot, affecting certain fruits. One strain of this species produces a possible gene cluster containing a gene which bears similarity to the fungal gene FtmPT1 from Aspergillus fumigatus, which is known to be a brevianamide F prenyltransferase. This sequence similarity has labeled this unnamed gene as a presumed aromatic prenyltransferase. The possible gene cluster that contains this aromatic prenyltransferase also contains a non-ribosomal peptide synthase. Enzymes produced by this gene cluster could be involved in the biosynthesis of the molecule deoxybrevianamide E, since the prenyltransferase has recently been evaluated as a reverse prenyltransferase. The resulting molecule specified by this gene cluster is assumed to be a deoxyisoaustamide, which is a class of molecules known to be produced by this fungal species and contains indole and diketopiperazine units. They are notable for their unusual 6/5/8/6/5 pentacyclic ring systems, which are not commonly found in natural products. The gene was synthesized and expressed in E. coli. Preliminary testing of the enzyme has yielded results showing successful reverse prenylation of the brevianamide F starting material. Two other enzymes from the same gene cluster are currently being utilized for biosynthesis of deoxyisoaustamide. _____

Short, Sage

Poster # 12

CAS/Creative Writing

2:00-3:00

Faculty Mentor: Mr. Terry Kennedy

Arts & Humanities

Impact: Cultural

Welcome Center: Poems on American Myths

“Welcome Center: Poems on American Myths” is a poetry manuscript that uses persona, docupoetics, and humor to interrogate, embody, and personify American myths, figures, and folklore, such as Mothman, Annie Oakley, and Dale Earnhardt, to grapple with the overarching myth of the American dream. Using speakers who have complicated opinions, feelings, and stakes in social settings, such as convention centers, shopping malls, and roadside attractions, and often with the backdrops of Harpers Ferry, West Virginia and Myrtle Beach, South Carolina, the speakers appear in conflict with themselves, each other, and interrogate their complicity in larger systemic practices like historical and familial violence and erasure. Some speakers happen to be reflective granddaughters, predatory beach lifeguards, and curious golf-cart beverage girls. Some poems take place in hair salons, movie theaters, and baseball stadiums. “Welcome Center: Poems on American Myths” invites you to take on the eyes of a young girl walking through a touristy town gift shop.

Smith, Sheldon

Poster # 36

HHS/Kinesiology

1:00-2:00

Faculty Mentor: Dr. Jessica McNeil

Laurie Wideman, Austin Robinson

Health Sciences

Impact: Health and/or Safety

Associations between actigraphy-assessed sleep with cardiovascular disease risk in Black emerging adults

Compared to age-matched individuals from other racial groups, Black emerging adults (ages 18–28 years) experience a disproportionately high prevalence of short sleep duration and elevated cardiovascular disease (CVD) risk factors, including hypertension. Insufficient sleep, characterized by short sleep duration and poor sleep efficiency, has been associated with increased CVD risk. However, among Black emerging adults, data examining the relationship between sleep and CVD risk remain limited. Therefore, a preliminary cross-sectional analysis was conducted to examine whether actigraphy-derived short sleep duration (<7 hours) and poor sleep efficiency (<85%) were associated with increased arterial stiffening and measures of blood pressure as CVD risk factors in Black emerging adults. Results indicated that longer sleep duration and greater sleep efficiency may be protective against increased hemodynamic burden in this population. These findings have important implications for CVD risk reduction in Black emerging adults, suggesting that sleep may represent a modifiable and accessible target for early prevention efforts. This work underscores the importance of addressing sleep health as a strategy aimed at reducing racial disparities in CVD outcomes and promoting health equity. IRB-FY23-271

Stone, Ashlyn

Poster # 37

HHS/Nutrition

1:00-2:00

Faculty Mentor: Dr. Steve Fordahl

Health Sciences

Impact: Health and/or Safety

Sex Specific Alterations in Substrate-Dependent Dopamine Neurotransmission Following Diet-Induced Obesity

Diet-induced obesity (DIO) continues to significantly increase chronic disease development. Research has shown that DIO leads to reduced dopamine neurotransmission within the Nucleus Accumbens (NAc), but it is yet to be determined if changes in dopamine neurotransmission results from changes in energy metabolism caused by DIO. This experiment measured the impact of different metabolic pathways on dopaminergic neurotransmission in the NAc. We fed male and female C57BL/6J mice a control or a high-fat diet for 6 weeks to engender DIO. Mice underwent fasting glucose and lactate to measure systemic metabolic impairments prior to measuring dopamine with ex vivo voltammetry. After establishing baseline dopamine neurotransmission, we applied small molecule inhibitors to block enzymes critical for glucose and fatty acid oxidation. Preliminary data indicate that mice fed a high-fat diet had greater reductions in dopamine release than control mice for both inhibitors. Interestingly, male mice had a greater reduction in dopamine release when fatty acid metabolism was blocked, and females had a greater reduction in release when carbohydrate metabolism was blocked. Overall, these data will provide further insights into how DIO alters brain energy metabolism to further understand how the brain might compensate when energy availability is challenged.

Sudha Sobhanakumar, Jibin

Poster # 60

CAS/Chemistry

1:00-2:00

Faculty Mentor: Dr. Liam Duffy

Citlaly Landin-Bermudez, Parker Till

Natural, Physical, & Mathematical Sciences

Impact: Technological

Mass Starkometry: a novel tool to separate and detect isomers and conformers of polar molecules.

Molecules that share the same mass can still behave very differently in chemistry and biology, because their atoms can be connected or arranged in different ways. These species, called isomers and conformers, are notoriously hard to distinguish with conventional mass spectrometry, which separates molecules only by their mass-to-charge ratio. In my research, I am developing a new instrument, the Mass-Starkometer, that separates neutral polar molecules based on how they respond to electric fields. The device uses rapidly switched electric quadrupole fields to act as a "rotational state selector," transmitting only molecules with specific combinations of dipole moment and rotational energy. As the switching conditions are scanned, each isomer produces a characteristic transmission pattern, providing a new way to distinguish them. We couple this selector to a velocity map imaging detector, which records detailed information about the transmitted molecules. Simulations and early experimental characterization show that closely related species, including isomers with similar overall dipole moments, should produce clearly different Starkometer signatures. This approach opens a path toward gas-phase, isomer-specific analysis for complex mixtures in areas ranging from atmospheric chemistry to pharmaceutical development.

Tamang, Melina

Poster # 61

CAS/Chemistry

2:00-3:00

Faculty Mentor: Dr. Nicholas Oberlies

Natural, Physical, & Mathematical Sciences

Manuel Rangel, Huzefa Raja, and Tyler Graf

Impact: Health and/or Safety

Wheldone, a cytotoxic compound from fungal-fungal co-culture

It is estimated that in 2025, there will be about 2,041,910 new cancer cases and approximately 618,120 cancer deaths in United States as per American Cancer Society. This data puts forward the urgency of discovery of novel anticancer drug. Natural products stand as the important source of cytotoxic drugs like taxol, camptothecin, and vinblastine. With the quest to discover anticancer drug, we are studying fungi as they are great resources for drug discovery because of 2.2 to 3.8 million fungal species and their ability to produce diverse fungal metabolites with pharmacological properties. Co-culture is growing two different fungal species together with limited resources, to trigger the stimulation of biosynthesis of new fungal metabolite as a defense mechanism to survive the competitive environment. From fungal-fungal co-culture of Aspergillus fischeri (Strain NRRL181) and Xylaria flabelliformis (Strain G536), a new compound wheldone was isolated that showed micromolar cytotoxic activity against breast, ovarian, and melanoma cancer cell lines. The future work includes semisynthetic modifications with the idea of increasing the anticancer activity of the compound, wheldone.

Ventura, Andrea

Poster # 94

CAS/Sociology

1:00-2:00

Faculty Mentor: Dr. Shelly Brown-Jeffy

Social Sciences, Education, & Business

Impact: Societal

Alternative Spirituality and Ideological Extremism: How a Rejection of Norms May Still Reproduce Patterns of Authority and Moral Judgement

This project examines a growing cultural shift: the rise of people who identify as *spiritual but not religious* (SBNR). Individuals leave organized religion seeking freedom, authenticity, and personal empowerment through practices such as meditation, astrology, wellness culture, or energy work. Yet analysis has found surprising overlaps between some spiritual communities and ideologies marked by distrust of institutions, appeals to moral purity, and strong individualism. This research asks: Why does rejecting organized religion sometimes reproduce similar patterns of authority, hierarchy, and moral judgment?

Drawing on sociological theory and qualitative analysis, this study examines how rituals and symbolic language reorganize moral authority outside formal institutions. Although traditional doctrines may be abandoned, underlying frameworks, such as ideas about purity, worthiness, and exceptional identity, often persist in new forms. Rather than disappearing, moral structures migrate to rituals of initiation, lineage claims, and embodied self-discipline.

This work contributes to ongoing conversations about religion, secularization, and media influence, as well as political and popular culture in the United States. As spiritual identity continues to expand and shape public discourse, understanding how its values are structured helps explain broader cultural and political trends that affect communities, institutions, and social bonds.

Vidal Carnero, Berta — Poster # 38

HHS/Kinesiology — 1:00-2:00

Faculty Mentor: Dr. Jaclyn Maher — Health Sciences

Alex Jochim, Jessica Dollar, Michaeline Jensen — Impact: Health and/or Safety

Scrolling and Steps: Examining Associations Between Screen-Time, Social Media Use and Physical Activity in Emerging Adults

Despite its well-established health benefits, physical activity (PA) declines sharply during emerging adulthood (ages 18-29). Concurrently, screen time and social media use are ubiquitous behaviors in this age group, raising questions about their influence on PA. The time-displacement hypothesis suggests that greater screen time may replace opportunities for PA; however, findings remain inconsistent. One explanation may be that not all screen time is equivalent. Social media represents a distinct digital context, delivering socially interactive and algorithm-driven content that may influence health behaviors differently than passive screen use. Within this context, exposure to fitness-related social media content ("fitspiration") may differentially relate to PA. This study will examine daily associations between screen-time, social media use and PA among emerging adults, with particular attention to the moderating role of fitspiration exposure. College students will complete a 10-day ecological momentary assessment (EMA) protocol integrating accelerometer-measured PA with device-based social media use and daily self-reports of fitspiration exposure. Multilevel modeling will test both between-person and within-person effects, controlling for gender, body mass index, socioeconomic status, and self-regulation. By combining device-based and contextual data, this study aims to clarify whether social media functions as a barrier versus a facilitator of active living in emerging adulthood. IRB-FY26-9

Watson, Brenda — Poster # 39

SOE/Informatics and Analytics — 2:00-3:00

Faculty Mentor: Dr. Aaron Beveridge — Health Sciences

Ashley White — Impact: Health and/or Safety

Knowledge of Sarcopenia and Strength Training Beliefs Among College-Aged Women

Background: Sarcopenia is often viewed as a condition of older adulthood; however, prevention strategies such as resistance training can begin in young adulthood. Little is known about college-aged women's awareness of sarcopenia or their readiness to engage in strength training as a preventive health behavior.

Purpose: This study examined sarcopenia knowledge, health beliefs, and perceived barriers to resistance training among college-aged women using the Health Belief Model.

Methods: An anonymous cross-sectional survey was administered to women aged 18–35 years enrolled at five universities. After data cleaning, 177 responses were analyzed. Measures included sarcopenia knowledge, perceived susceptibility and severity, perceived benefits and barriers to resistance training, self-efficacy, and cues to action.

Results: Over half of participants (51.4%) had never heard of sarcopenia, and only 11.3% demonstrated high knowledge. Although most recognized the benefits of resistance training and the importance of muscle mass for future independence, fewer perceived sarcopenia as personally relevant at their age. Common barriers included lack of knowledge on how to begin resistance training, limited equipment access, and appearance-related fears such as bulking up. Despite these barriers, most participants reported high self-efficacy and willingness to participate if structured programs were available.

Conclusions: College-aged women demonstrate low sarcopenia awareness. IRB-FY28-351

Wells, Rehshetta

Poster # 95

SOE/Higher Education

1:00-2:00

Faculty Mentor: Dr. Delma Ramos

Social Sciences, Education, & Business
Impact: Educational

Carrying Knowledge: How Care Shapes Learning in Southern Colleges

Many students succeed in college because of dedicated faculty who support them far beyond the classroom. This project explores how Black and Latine women faculty in the U.S. South use care, mentorship, and community-building to help students learn and thrive. Although this work plays a major role in student success, it is often overlooked or treated as "extra," rather than recognized as an important form of teaching and knowledge-sharing.

Drawing from interviews, personal history, and research on learning and education, this project shows that care is not simply emotional support, it is a way of passing down knowledge across generations. These faculty members draw from cultural traditions, family teachings, and lived experiences to create learning environments where students feel valued, supported, and capable. Their methods resemble "open" forms of education: sharing information freely, guiding students through challenges, and helping them access resources they might not otherwise receive.

By highlighting these often invisible practices, this project encourages colleges and universities to better recognize the essential role of faculty care in student success. Understanding and valuing this labor can lead to more supportive learning environments for all students.

Williams, Iyaira

Poster # 96

SOE/Higher Education

1:00-2:00

Faculty Mentor: Dr. Erica Payton

Social Sciences, Education, & Business
Impact: Educational

7 Types of R-E-S-T: Taking (not finding) the time to rest, reset, and regulate in young Black women

The prevalence of burnout in American culture is a result of rest deficiency (Abramson, 2025). Rest deficiency can lead to emotional dysregulation and remaining in an emotionally dysregulated state can be a predictive risk factor for depression in Black women (Crow et al., 2014). A holistic approach to address this deficit is Dalton-Smith's (2017) R-E-S-T method in the 7 Types of Rest Framework. The purpose of "7 Types of R-E-S-T: Taking (not finding) the time to rest, reset, and regulate in young Black women" workshop is to teach young Black women, ages 18-35, the 4 components of R-E-S-T across the 7 types of rest and introduce culturally relevant strategies that promote emotional regulation practices. Upon completing the workshop, participants will be able to: 1) identify at least three stressors that contribute to the feelings of emotional dysregulation; 2) identify the seven types of rest and which type(s) of rest they are burnt out in; 3) apply the R-E-S-T method to each type of rest; and 4) create a personalized four-week rest plan incorporating the strategies learned to address at least one of the stressors they identified that contributes to the feelings of emotional dysregulation.

Williford, Shelby — Poster # 62

CAS/Biology — **1:00-2:00**

Faculty Mentor: Dr. Kevin Wilcox

Natural, Physical, & Mathematical Sciences

Impact: Environmental

Competition versus climate: Effects on the threatened Longleaf Pine Savanna

Heatwaves and droughts are increasing in frequency and intensity due to climate change. These events will have strong impacts on the functioning of ecosystems and the services they provide. The goal of this research is to apply these compound climatic events to the threatened Longleaf Pine Savannas (LLP), whose mechanisms of tree-grass coexistence are less studied. This study aims to answer the following questions:

1. How does intra versus interspecific competition vary between trees and grasses?
2. How does global change heighten these competitive effects?

These questions are being answered through a two-year experiment that applies drought, heatwaves, and competition treatments in a fully factorial design. Year one's results show that climate treatments are not intensifying competition effects. However, plants are showing increased water stress through more negative water potentials when growing in the climate treatment plots, which may lead to intensifying effects in year two. Grasses are also exerting a larger competitive effect, with both species being significantly smaller when grown in a pot with a Little Bluestem grass plug. These initial results, along with coming results from year two of this experiment, will create a broader understanding of how this ecosystem might respond to continued global change.

Yalavarthi, Sindhu — Poster # 40

JSNN/Nanoscience — **2:00-3:00**

Faculty Mentor: Dr Kerui Wu

Health Sciences

Sindhu Yalavarthi1, Yusif Abdul-Rashid1, Morgan Gyger1, Richard Sedeafor1, Zahra Sabet1, Jordan Mack1, Zhenquan Jia2, Jianjun Wei1 and Kerui Wu1

Impact: Health and/or Safety

Synthetic Antigen Presenting cells for immune activation in lung cancer.

The immune system plays a critical role in fighting cancer, and specialized cells called antigen-presenting cells (APCs), especially dendritic cells, are essential for activating cancer-killing T cells. However, in patients experiencing lung cancer, these cells are reduced in number or function poorly. Current approaches like dendritic cell therapy or T-cell transfer have shown limited success, highlighting the need for better strategies.

We previously developed an artificial APC using small extracellular vesicles (sEVs) engineered to display tumor antigens and a localized immune-stimulating signal (IL-2). While this system enhanced T-cell activation, it still carries important limitations of sEV-based approaches, such as differences in vesicle size, inconsistent surface protein levels, limited control over signal density, and difficulties in achieving reproducible large-scale manufacturing.

To overcome these challenges, we are now developing synthetic antigen-presenting cells (SAPCs) using membrane extrusion and biorthogonal click chemistry. This next-generation platform allows precise control over vesicle size and molecular organization, improving consistency and immune activation. These engineered nanovesicles aim to boost anti-tumor immunity, prevent cancer recurrence after surgery, and enhance responses to immune checkpoint therapies in advanced disease.

Our goal is to refine this bioengineered system to create a scalable, reproducible cancer immunotherapy platform with strong translational potential.
