Oral Presentation Abstracts Listed by Session

Friday, September 5, 2025 - Location: SUB Top Floor Rooms

ATTENTION: These abstracts were published unedited to reflect the author's original submission

Botero, Pacha - Major: Chemistry and Biochemistry, New Mexico State University
Mentor: Dr. Cory Windorff, Assistant Professor, Department of Chemistry and Biochemistry
Oral Presentation Session #7, Room: Trailblazer/Spirit
Title: *Investigating HIDA as a Ligand for Oxo-Bond Disruption in Actinide Complexes*
Abstract: Uranium poses an environmental risk as a radioactive heavy metal. In nature, it primarily exists as the uranyl ion (UO_2^{2+}), which features two strongly bonded oxo ligands with linear geometry. These U=O bonds are exceptionally stable, limiting the reactivity of uranyl and contributing to its environmental persistence. Studying vanadium–oxo systems can offer insight into uranium chemistry. Amavadin, a naturally occurring vanadium(IV) complex found in Amanita muscaria fungi, disrupts the analogous V=O bond through coordination with hydroxyiminodipropionic acid (HIDPA), forming $[V(IV)(HIDPA)_2]^{2-}$. This project investigates hydroxyiminodiacetic acid (HIDA), a structurally related, achiral analog, as a ligand capable of disrupting the oxo bond in uranyl and other actinyl ions. Successful synthesis of HIDA has been confirmed by proton nuclear magnetic resonance (^1H NMR) spectroscopy. The formation of $[V(IV)(HIDA)_2]^{2-}$ has been replicated, and efforts to crystallize and characterize the complex using UV-Vis and X-ray diffraction are underway. Additionally, the analogous $[Ce(IV)(HIDA)_2]^{2-}$ complex is being pursued as a model for plutonium to study f-element coordination behavior without an oxo bond. Ultimately, this work aims to advance the understanding of actinide bonding and support the development of ligands for selective actinide chelation, with applications in nuclear waste processing and environmental remediation.

Gomez, Kira - Major: Animal Science, University of Arizona
Mentor: Dr. Liliana C.M. Salvador, Assistant Professor, School of Animal and Comparative Biomedical Sciences
Oral Presentation Session #7, Room: Isleta
Title: *Tracing Zoonotic Tuberculosis Using Whole-Genome Sequencing*
Abstract: Zoonotic tuberculosis (zTB), caused mainly by Mycobacterium bovis, presents a public health challenge globally, particularly where humans, livestock, and wildlife closely interact. While whole-genome sequencing (WGS) has emerged as a tool for detecting and characterizing M. bovis transmission, parts of the world – particularly Africa – remain underrepresented in genomic surveillance. This limited coverage obscures the true burden of zTB and hinders our ability to detect cross-species transmission. Our study uses Africa as a case study to examine zTB transmission of M. bovis by analyzing publicly available WGS data from human and animal hosts. We hypothesize that genetically clustered isolates will indicate shared strains across species and suggest potential transmission events. We compiled Africa M. bovis isolates from NCBI and performed SNP-based clustering and phylogenetic analyses to evaluate host sharing and geographic overlap. Our results show that the human M. bovis isolate and cattle-derived isolates from Uganda cluster (~37 SNPs), indicating a shared lineage but not recent interspecies transmission. Conversely, WGS revealed plausible recent transmission events (<12 SNPs) between cattle within Nigeria, Ethiopia, and among wildlife in South Africa. Additionally, based on the available data, countries including Morocco, Uganda, and Ethiopia exhibit high genetic diversity of M. bovis strains, while others, like Zambia, show relatively low diversity. These findings demonstrate the use of WGS in identifying potential zTB and bovine TB events, underscoring the need for improved One Health surveillance. Results also suggest that the contribution of M. bovis to human TB in Africa may be underrecognized in public health data.

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Friday, September 5, 2025 - Location: SUB Top Floor Rooms

Guzman, Neftali - Major: Psychology and Social Work, St. Edward's University
Mentor: Dr. Adam McCormick, Professor of Social Work, Department of Social Work
Oral Presentation Session #7, Room: Fiesta A
Title: *Breaking the Cycle: The Criminal Justice System and the Barriers to Trauma Informed Care*
Abstract: Although the United States criminal justice system requires mental health screenings for all individuals entering the system, they fail to properly address the adverse childhood experiences (ACEs) and trauma people experience in and out of the system. This study explores how the absence of trauma informed care training in the criminal justice system influences re-traumatization and re-incarceration. This study aims to identify gaps in the provision of trauma-informed care for individuals in the adult criminal justice system, particularly in relation to understanding their experiences of trauma and adversity. We hypothesize that the lack of trauma-informed training among criminal justice professionals contributes to increased rates of re-traumatization and re-incarceration among system-involved individuals. Using qualitative thematic analysis and semi structured interviews we recruited four social workers working in the criminal justice system to interpret and identify ongoing themes that people experience in prison.
By the end of this project we will have completed four interviews and analyzed the transcripts to create related themes. Using a thematic analysis we used qualitative coding strategies such as open coding, axial coding, and constant comparison to identify emerging patterns across interviews.

Hancock, Erica - Major: Psychology/Criminology, Concord University
Mentor: Dr. Stephen Pridgen, Associate Professor of Sociology, Sociology
Oral Presentation Session #7, Room: Acoma B
Title: *The Impact of Adverse Childhood Experiences on Quality of Life in College Students from Rural West Virginia*
Abstract: Adverse childhood experiences (ACEs) are linked to reduced quality of life for people entering adulthood primarily due to stress, among other contributing factors. Early intervention is vital in supporting ACE survivors. Because of the early exposure to trauma, these individuals are often found to exhibit a heightened stress response, regardless of the stressor's severity, inducing toxic stress. With that in mind, this study will assess traditional college students' stress response levels through a self-reported scale before and after a neutral or mildly stressful video stimulus is shown. Finally, participants' adverse childhood experiences will be scored using the ACE questionnaire. It is hypothesized that those with higher ACE scores will exhibit greater changes in stress levels after the stimulus. Traditional college students were chosen as the target population because college represents a pivotal developmental stage as students enter adulthood. This transition introduces responsibility and independence alongside a new world of possible stressors, increasing emotional vulnerability. This study aims to raise awareness about the impact of adverse childhood experiences, which are often overlooked in areas such as rural West Virginia due to a lack of resources and understanding.

Johnson, Alexis - Major: Bioengineering , University of Maryland, College Park
Mentor: Greg Duncan, PhD, Associate Professor , Fischell Department of Bioengineering
Oral Presentation Session #7, Room: Lobo B
Title: *Mucin-coated Nanoparticles for Modulating Neutrophilic Inflammation*

Abstract: Chronic respiratory diseases (CRDs) (e.g., cystic fibrosis, chronic obstructive pulmonary disease, and asthma) are leading causes of morbidity and mortality worldwide. These conditions are characterized by airway inflammation and mucus overproduction, which impairs drug delivery. Neutrophils contribute to this inflammation by releasing neutrophil extracellular traps (NETs), composed of DNA and granule proteins, in a process called NETosis. Excessive NET formation worsens lung function and disease severity. Prior work has shown that mucins, large glycoproteins found in mucus, can suppress NETosis, suggesting potential for mucin-based therapies. In this study, we synthesized mucin-coated nanoparticles by complexing porcine gastric mucin (PGM) with poly-lactic-co-glycolic acid (PLGA) using a nano-emulsion method. HL-60 cells, differentiated into neutrophil-like cells with DMSO, were treated with nanoparticles formulated using varying mucin concentrations (0, 1, 2.5, 5 mg/mL). NETosis was induced using phorbol-12-myristate-13-acetate (PMA), and extracellular DNA release was quantified using Sytox Green fluorescence. Nanoparticle size, charge, and mucin content were also characterized. Results showed that mucin-coated nanoparticles suppressed both PMA-induced and spontaneous NETosis in a mucin concentration-dependent manner. Notably, uncoated PLGA nanoparticles exacerbated NETosis, indicating potential pro-inflammatory effects of PLGA. However, mucin coatings significantly reduced this response, with the 2.5 and 5 mg/mL particles showing the most robust inhibition. These findings support the therapeutic potential of mucin nanoparticles in modulating neutrophil-driven inflammation. By leveraging the anti-inflammatory properties of mucins, these particles may offer a promising vehicle to overcome mucus barriers and reduce NET-associated damage in CRDs.

Mancinas, Jeremías - Major: Mathematics, University of Colorado Boulder
Mentor: Dr. Juan Villarreal, Postdoc / Visiting Professor, Department of Mathematics
Oral Presentation Session #7, Room: Lobo A
Title: *Lie Conformal Algebras and Celestial Holography*
Abstract: Scattering amplitude is a quantity central to quantum field theory that describes the likelihood of particles interacting in a specific way. While these amplitudes are usually difficult to compute, some turn out to be remarkably simple. One famous example is the Parke-Taylor formula, which describes gluon scattering that hints at deeper mathematical structure.

Recent work in celestial holography, which reinterprets scattering processes at the boundary of spacetime, has linked these formulas to objects called Lie conformal algebras, algebraic systems that capture the symmetries of certain quantum theories. In this project, we explore a deformation of the Parke-Taylor Lie conformal algebra proposed by Costello and Paquette in 2022. Their deformation aims to account for higher-order corrections to the scattering process.

Our main goal is to check whether this deformation still satisfies the axioms required of a Lie conformal algebra. This involves testing several algebraic properties (including sesquilinearity, skew-symmetry, and especially the Jacobi identity) on increasingly complex combinations of generators. The most difficult case assumes a trace identity given by the authors and requires long computations involving dihedral symmetry, trace manipulations, and several nontrivial algebraic techniques. We have just successfully proved this identity during the week of submission.

This project lies at the intersection of physics and pure math. By translating questions about particle interactions into rigorous algebraic language, we aim to better understand the

mathematical structure underlying modern quantum theories and to make this emerging area more accessible to both mathematicians and physicists.

Novella, Areika - Major: Psychological Science , Loyola Marymount University
Mentor: Dr. Timothy J. Williamson , Assistant Professor of Psychology , Department of Psychological Science
Oral Presentation Session #7, Room: Fiesta B
Title: *The Association between Health Literacy and Receiving Coordinated Medical Care among Hispanic and Latino/a U.S Adults with Chronic Disease*
Abstract: In the U.S., Hispanic and Latino/a (H/L) adults are disproportionately affected by chronic health conditions (e.g., diabetes, hypertension). They also face disparities in health literacy and care quality, often due to language barriers and limited access to culturally competent care. Managing chronic disease frequently requires care from multiple providers, making coordination essential for high-quality care and effective disease management. Individuals with lower health literacy may face greater challenges navigating the healthcare system and communicating across providers, which could impact medical care coordination. Among H/L adults with one or more chronic diseases (n=474), we tested whether higher health literacy was associated with greater coordination of medical care.
We analyzed data from the 2024 Health Information National Trends Survey (HINTs 7) by conducting a multivariable linear regression, with health literacy predicting medical care coordination ("how often did you get the help you needed from your primary care provider's office to manage your care among different providers and services?"), controlling for age, sex, and insurance coverage.
Health literacy was not associated significantly with medical care coordination (b=0.09 p=.400 95% CI [-0.13, 0.31]). Of the covariates, female (vs. male) sex and age groups 35-49 and 65-74 (vs. 18-24) were associated with greater medical care coordination (all p<.05).
Contrary to our hypothesis, health literacy as not associated with medical care coordination. Future research should explore how structural factors (e.g., language barriers) may strongly influence care experiences among H/L adults with chronic disease.

Perfecto, Ashton Lucas Leonardo - Major: Oceanography, California Polytechnic University, Humboldt
Mentor: Dr. Walter Torres, Postdoctoral Researcher, Applied Physics Laboratory, University of Washington
Oral Presentation Session #7, Room: Acoma A
Title: *Progress on the Kumar Texts: Visual communication of oceanographic concepts for coastal science education*
Abstract: This presentation summarizes the ongoing efforts towards making course materials for CEWA 473/573 Coastal Engineering, CEWA 570 Hydrodynamics, and CEWA 572 Numerical Modeling of Hydrodynamics – affectionately dubbed the "Kumar Texts" in honor of the professor who personally developed the manuscripts, Nirnimesh Kumar – suitable for online dissemination. Summer work was focused on reworking figures using vector graphic design software to improve on visual communication of key concepts, following preset aesthetics (e.g. color palette, typeface, font) to standardize modifications and satisfy copyright reuse rules. The goal was to further prime the manuscripts – attending, on this timeline, to the Coastal Engineering material – to license as an open education resource (OER) and make accessible and affordable for educators, students, coastal oceanographers, and the public. The Kumar Texts serve as contributions to the Open Education movement, striving to counteract the

economic constraint and historical exclusivity around education and scientific knowledge while affording learners greater autonomy in choosing educational materials to fit their means of academic success. The use of open textbooks in science education has significantly predicted favorable student success without decreasing the quality of education. Making the wealth of oceanographic learning material available to the general and formal student populations through open access licensing will promote ocean literacy and enhance opportunities for the collaborative production of scientific knowledge.

Richey, Kaydyn - Major: Communication Sciences & Disorders, University of Northern Colorado
Mentor: Dr. Catlin Raaz, Associate Professor, Communication Sciences & Disorders
Oral Presentation Session #7, Room: Santa Ana B
Title: *Preservice Teachers Exposure to Developmental Language Disorder During College*
Abstract: Developmental language disorder (DLD) is a lifelong language impairment that affects two students in every classroom, impacting an individual's academic achievements and long-term socioeconomic status. Despite its prevalence, general education teachers often report conflicting awareness and insufficient preparation to identify or support students with DLD. Current research suggests inconsistencies in teacher training, identification methods, and referral rates for developmental language disorder. While previous studies revealed the overall inadequate preparation of educators, none looked at how preservice teachers are prepared for language disorders throughout college. Therefore, I propose a mixed-methodology study to address this gap in the current literature to answer the question, “How does college curriculum prepare preservice educators to support developmental language disorder in the classroom?” I intend to examine teacher preparation curriculum guidelines, in addition to preservice teachers' current awareness of developmental language disorder. To explore curriculum guidelines, I am going to conduct interviews with collegiate curriculum coordinators in Colorado and perform a thematic analysis. I will analyze preservice teachers' awareness through surveys. I hope for this study to provide insight into why preparation and support for developmental language disorder are low, as well as spark a conversation on developing curriculum for general educators and language disorders.

Sylla, Hadja Mariam - Major: Finance , Washington State University
Mentor: Dr. David Whidbee & Dr. Leah Sheppard, David Whidbee is the Interim dean of the Carson College of Business

Leah Sheppard is the Associate Professor of Management and an Associate Dean for Equity and Inclusion. , David Whidbee: Department of Finance and Management Science, Carson College of Business, WSU

Leah Sheppard: Department of Management, Information Systems, and Entrepreneurship, Carson College of Business, WSU
Oral Presentation Session #7, Room: Luminaria
Title: *Navigating Financial distress in immigrant households: Identifying systemic barriers and policy solutions*

Abstract: This research proposal seeks to explore the financial struggles immigrant households face as they navigate unfamiliar economic systems in the United States. By applying Cultural Capital Theory, Social Capital Theory, and Life Course Theory, this study will examine how

cultural background, financial literacy, and social networks influence the financial wellbeing of immigrant families. This project will use a mixed methods approach combining interviews and surveys to investigate common financial barriers and how communities respond to them through informal support systems.

Key areas of focus include limited access to banking and credit, reliance on high-cost financial services, and employment instability. These challenges not only impact day to day financial security but also shape long term outcomes such as homeownership, education, and generational wealth.

Although data collection has not yet begun, the goal of this research is to identify recurring patterns in immigrant financial experiences and propose practical, policy-based solutions. Potential recommendations may include expanding access to credit through alternative identification methods, regulating predatory lending practices, and improving job mobility through workforce development programs.

By centering the lived experiences of immigrant families, this research aims to inform more inclusive economic policies and contribute to broader conversations about financial equity. Ultimately, this project aspires to offer insights that can help reduce systemic barriers and create meaningful, long-lasting change.

Zurasky, Melyssa - Major: Psychology , University of New Mexico
Mentor: Dr. Katie Witkiewitz & Ikela Moniz-Lewis M.S., Distinguished Professor & Pre-doc Fellow, Department of Psychology
Oral Presentation Session #7, Room: Santa Ana A
Title: *Understanding Mechanisms of Behavior Change for Substance Use Treatment*

Abstract: Substance use disorder (SUD) affects millions worldwide, with 40-60% of individuals returning to use within a year post-treatment (Bowen et al., 2014). Despite research on effective treatments, the Mechanisms of Behavior Change (MOBC) remain unclear. This gap in knowledge limits the ability to optimize treatments and match individuals to interventions that will work best for them. Locus of control (LOC) represents a fundamental psychological construct with significant predictive value for treatment success (Caliendo & Hennecke, 2022). This construct is distinguished by internal control (personal influence over events) and external control (attributing outcomes to luck or external forces; Rotter, 1966; Koski-Jannes, 1994). Studies show that an internal drinking-related LOC is linked to improved psychological outcomes (Bowen et al., 2006; Dahal et al., 2021). A potentially effective way to increase an individual's internal LOC is mindfulness-based interventions. One study found that Vipassana meditation participants showed decreases in psychiatric symptoms and increases in psychosocial outcomes, which included a greater internal drinking-related LOC (Bowen et al., 2006). Mindfulness-Based Relapse Prevention (MBRP) has demonstrated positive long-term treatment outcomes compared to standard relapse prevention and treatment as usual, with MBRP participants reporting significantly fewer drug use days and a reduction in heavy drinking at 12-month follow-up (Bowen et al., 2014). This secondary analysis of Bowen et al. (2014) assesses LOC using the Drinking-Related Locus of Control Scale (DRIE) at baseline, post-treatment, and follow-up time points. A mediation model will clarify whether changes in internal LOC act as a MOBC in MBRP, Relapse Prevention (RP), and Treatment as Usual for substance use.

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Friday, September 5, 2025 - Location: SUB Top Floor Rooms

Alexander, Summer - Major: Psychology and African American Studies , Loyola Marymout University

Mentor: Dr. Josette Banks, Clinical Assistant Professor of Psychology, Department of Psychological Science

Oral Presentation Session #8, Room: Acoma B

Title: *Feelings on the Field: the relationship between emotions and sports performance*

Abstract: The International Olympic Committee (IOC) has identified 11 mental health symptoms and disorders significantly prevalent in athletes of collegiate and professional levels such as major depression/depression symptoms, anxiety, eating disorders, and sleep disorders (Reardon et al., 2019). Yet significant disparities in understanding and treatment persist, particularly for marginalized communities. Despite a general prevalence of mental illness symptoms across demographics, Black athletes face unique barriers to care, including pervasive stigma of mental illness, historical distrust of medical and mental health professionals and institutions, and a critical lack of culturally competent support. This is exacerbated by a scarcity of targeted research, especially regarding Black athletes' own perceptions of their mental well-being in relation to their athletic lives. Furthermore, the sports environment can introduce unique stressors, such as stereotype threats, which may profoundly impact the psychological well-being and performance of Black collegiate athletes. With this foundation, a mixed-methods study is proposed to examine the correlation between negative psychological symptoms (depression and anxiety), exposure to stereotype threat, and athletic performance among Black collegiate athletes. Ultimately, this inquiry aims to bridge critical research gaps, foster a deeper understanding of mental health in this population, and promote more equitable and supportive environments within collegiate athletics for Black athletes and other marginalized groups.

Arevalo-Pio, Ahtziri - Major: Human Development , Psychology, & Leadership, Washington State University

Mentor: Dr. Holly Whittenburg, Assistant Professor, College of Education

Oral Presentation Session #8, Room: Santa Ana B

Title: *Investigating the Experiences of Autistic Students and Families During the Transition from High School to Adulthood in Low-Income Families and Marginalized Communities*

Abstract: Current studies indicate that autistic students face various challenges when transitioning from high school to adulthood, including limited services, lack of coordination between schools and adult agencies, and limited opportunities to develop the skills needed for employment and postsecondary education. However, research that explores the experiences of autistic students and families from low-income households during this critical period is missing. To explore these experiences, I will examine what support or resources made the biggest difference according to autistic students and their families, barriers faced by low-income families trying to access services for their autistic student, and what low-income families face while they support their autistic student transition from high school to adulthood. In this research, I will investigate the experiences of these students and families. My focus will be on interviewing autistic high school students and families from low-income households about the support and barriers they experienced during the transition from school to adult life. In my presentation, I will include comprehensive information on my study design, including research questions, recruitment procedures, questionnaire development, data collection procedures, and data analysis procedures. I will also share the draft interview questionnaire I am developing for this project. Examining the experiences of these students and their families can allow us to better support these students by highlighting the interventions and resources needed to decrease

challenges and increase supportive approaches. Having insight into the experiences of these students will lead us to evidence-based practices, interventions, and strategies to help students be successful in high school and after graduation.

Banjo, Mobosola - Major: Philosophy, University of North Carolina Greensboro
Mentor: Gia Cotturi Sorenson, Ex Assistant Director for Written Communication/ Program Head of Videogaming and Esports Studies concentration, Department of Liberal and Interdisciplinary Studies, B.A. Videogaming and Esports Studies Concentration
Oral Presentation Session #8, Room: Fiesta B
Title: *Why Words Wins Cases*
Abstract: In the legal field, words are more than tools of communication—they are instruments of persuasion, interpretation, and justice. This article examines the pivotal role that language plays in the courtroom and beyond, exploring how the careful choice, framing, and delivery of words can shape legal arguments, influence judges and juries, and ultimately determine the outcome of cases. Drawing on rhetorical theory, real-world case studies, and the practical demands of advocacy, the discussion highlights the interplay between precision and persuasion, demonstrating that a lawyer's success often hinges as much on verbal mastery as on the strength of the facts. The article argues that effective legal communication requires not only knowledge of the law but also the ability to translate complex ideas into compelling narratives that resonate with diverse audiences. By unpacking the strategies and techniques behind winning arguments, it underscores a timeless truth: in law, the right words can be as decisive as the law itself.

Barajas, Sofia - Major: Marine Science, California State University, Monterey Bay
Mentor: Dr. Cheryl Logan, Professor , Department of Marine Science
Oral Presentation Session #8, Room: Acoma A
Title: *Exploring interannual variations in adult alewife (Alosa pseudoharengus) energy condition as a proxy for changing environmental and feeding conditions in the Gulf of Maine*
Abstract: As ocean temperatures rise due to climate change, the Gulf of Maine has experienced particularly rapid warming, averaging an increase of 0.4℃ per decade over the past 30 years. This shift has altered marine ecosystems and reduced the availability of high-energy prey such as Calanus finmarchicus, a key food source for pelagic forage fish like the anadromous alewife (Alosa pseudoharengus). Because alewives spend most of their adult lives feeding in the Gulf of Maine before returning to freshwater to spawn, their energy condition may reflect broader environmental and ecological changes in the region. This study uses archived specimens collected through the Casco Bay Aquatic Systems Survey (CBASS) to explore interannual and ontogenetic variation in alewife energy condition from 2014 to 2025. Thawed alewives were dissected to collect internal organs. Metrics such as dry weight percentage, Fulton's condition factor, and somatic indices (liver and gonad) will be assessed as proxies for energy density and feeding success. These condition metrics will be compared across years and related to Gulf of Maine sea surface temperature anomalies and C. finmarchicus abundance where available. We hypothesize that larger individuals will exhibit higher energy condition and that fish from earlier, cooler years will have higher energy reserves than those from more recent, warmer years. Results from this study will contribute to our understanding of how climate-driven changes in marine food webs influence forage fish condition and may support the use of alewife as a sentinel species for monitoring ecosystem change in the Gulf of Maine.

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Corona, Laisha - Major: Biologu, Laisha Ruby Corona
Mentor: Dr. Paulette Vincent Ruz, Assistant Professor, Deparment of Chemistry Education
Oral Presentation Session #8, Room: Trailblazer/Spirit
Title: *Translanguaging in Stem education*
Abstract: Translanguaging—the practice of fluidly using multiple languages in a single learning space—offers a powerful lens for rethinking equity in STEM education. At Hispanic-Serving Institutions, many students enter classrooms as bilingual or multilingual learners, carrying cultural and linguistic strengths that are often overlooked in traditional “English-only” teaching environments. This project examines how translanguaging emerges in a General Chemistry I course at a Hispanic-Serving Institution and how it supports student learning, confidence, and identity within STEM.

Through a mixed-methods approach that includes surveys, classroom observations, and student reflections, this study highlights the ways students naturally shift between English and Spanish to process difficult chemistry concepts, explain ideas to peers, and navigate scientific language. Early findings show that translanguaging is not a barrier but a bridge—allowing students to engage more deeply with content, draw from their lived experiences, and create stronger peer-to-peer connections. Importantly, the research challenges deficit perspectives that equate bilingualism with lack of preparedness, instead framing language diversity as a critical resource for student success.

By centering student voices, this project underscores how translanguaging can reshape the classroom into a space where students feel empowered to bring their full selves into STEM learning. Rather than lowering academic standards, translanguaging practices expand access, strengthen comprehension, and foster belonging in fields that too often feel exclusionary. Ultimately, this research highlights the need for inclusive teaching practices that recognize language as an asset and affirm the identities of bilingual students pursuing STEM careers.

Davis, Arriona - Major: Cognitive Neuroscience, Harding University
Mentor: Dr. Jaime Murphy, Associate Professor of Chemistry, Department of Chemistry and Biochemistry
Oral Presentation Session #8, Room: Lobo B
Title: *Using Deoxyribose Assay to Measure Antioxidant Capabilities of Methionine*
Abstract: Oxidative stress, caused by an imbalance between reactive oxygen species (ROS) and antioxidant defenses, plays a critical role in the development of numerous diseases including cancer, neurodegenerative disorders, and cardiovascular conditions. Among the ROS, the hydroxyl radical (•OH) is considered one of the most reactive and damaging species. Antioxidants neutralize ROS and help maintain cellular integrity, but not all antioxidants target hydroxyl radicals effectively. Methionine, a sulfur-containing amino acid, has shown potential antioxidant properties due to its ability to react with and scavenge ROS. This project aims to evaluate the antioxidant effectiveness of methionine specifically against hydroxyl radicals using the deoxyribose assay, an in vitro method that utilizes the Fenton reaction to generate hydroxyl radicals and detect oxidative damage. Through this assay, the effectiveness of methionine to inhibit hydroxyl radical induced degradation of deoxyribose will be assessed when compared to glycine and other antioxidants that have been tested using the deoxyribose assay. The findings from this study will contribute to the growing body of research on sulfur-based antioxidants and their effectiveness.

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Gomez, Gema - Major: Agricultural Plant and Soil Science, University of Minnesota
Mentor: Julie Grossman, Professor, Department of Horticulture Science
Oral Presentation Session #8, Room: Isleta
Title: *Improving Soil Health in High Tunnels: The Role of Legume Cover Crops and Rhizobia Inoculation*
Abstract: High tunnels (HTs) are increasingly used by Minnesota farmers to increase crop productivity, protect against extreme weather, and extend growing seasons. These structures create a unique microclimate which varies in temperature, humidity, and soil moisture compared to open-field environments. To monitor these conditions, we used temperature data loggers inside and outside the HTs to track soil and air temperature fluctuations. Limited rainfall in HTs can lead to nutrient buildup from manure fertilizer use. A potential alternative to manure fertilizer is legume cover crops (CC), which fix nitrogen and enhance soil fertility, allowing for reduced fertilizer use. To compare legume CC on N availability, we collected soil from Grand Rapids, Minnesota HT with two legume CC: hairy vetch (Vicia villosa) and austrian winter pea (Pisum sativum subsp. arvense), then measured Potentially Mineralized Nitrogen to assess soil quality. To further explore nitrogen fixation potential, we evaluated the effects of rhizobia inoculants on two additional legume CCs: crimson clover (Trifolium incarnatum) and field pea (Pisum sativum) in an open field by measuring nodulation and plant biomass. These experiments contribute to understanding of how legume CC can be integrated into HT systems to improve soil fertility and sustainable nutrient management.

Jordan, Alani - Major: Data Science, Mathematics, University of Arizona
Mentor: Dr. Doug Haessig, Associate Professor, Mathematics
Oral Presentation Session #8, Room: Lobo A
Title: *Counting Closed Paths Using the Ihara Zeta Function*
Abstract: The Ihara Zeta function was developed in the 1960s by mathematician Yasutaka Ihara on algebraic groups, but mathematicians such as Ki-ichiro Hashimoto began to consider the Ihara Zeta Function within the context of graphs. More specifically, it can be used to count the number of closed paths on a graph. In graphs with two or more cycles, there are an infinite number of closed paths. However, there is a finite number of paths with a length equal to a specified nonnegative integer, n. Using the Ihara-Bass Theorem, we can easily calculate the Taylor series expansion of the Ihara Zeta function. The coefficients of the Taylor series expansion of the Ihara-Bass Theorem are equivalent to the number of closed paths of length n.

Morel, Mariely - Major: Forensic Psychology, John Jay College of Criminal Justice
Mentor: Dr. Deborah Koetzle, Professor, Department of Criminal Justice
Oral Presentation Session #8, Room: Fiesta A
Title: *What Works For Me? Participant Perceptions and Experiences of Substance Use Treatment in a Drug Court Setting*
Abstract: Since 1989, drug courts have emerged as a widely adopted alternative to incarceration for individuals with substance use disorders. While many studies have examined the structure and effectiveness of drug court models, less attention has been given to participants' perspectives on treatment, particularly the obstacles that they face and their recommendations for improvement. This study addresses the gap by asking: How do drug court participants perceive the adequacy of the substance use treatment they receive, and what changes do they believe would enhance their recovery outcomes? Drawing on focus group interviews with participants in outpatient drug court treatment, this study explores perceived barriers and suggestions for program improvement. Findings highlight participants' experiences

with group and individual counseling, treatment activities, access to services, and planning for post-program success. By centering participant voices, this study aims to inform more responsive and effective drug court treatment practices within the criminal justice system.

Sanchez Hernandez, Jason - Major: Economics, University of New Mexico
Mentor: Dr. Xiaoyang Wang, Assistant Professor, Department of Economics
Oral Presentation Session #8, Room: Luminaria
Title: *New Mexico's Crude Oil: A Tax Burden Analysis*
Abstract: Resource Curse describes how states dependent on natural resources for their revenue underperform on standard economic measures, largely due to the volatile nature of commodity prices. New Mexico is at risk, as its state budget heavily depends on the oil and gas industry. Lawmakers are increasingly concerned about revenue instability from price fluctuations in the industry. This research focuses on identifying a taxation policy that minimizes impact from price volatility and stabilizes revenue for the state budget. Drawing on past research in applied tax analysis and development economics, this study evaluates multiple production-based tax structures. Using 20 years (2004-2024) of oil price and production data from the U.S. Energy Information Administration, a time series analysis will be conducted to model and compare policy outcomes. Findings will be used to inform of potential tax strategies the state can implement to stabilize revenue and ensure consistent funding of public services.

Vork, Jasmine - Major: Psychology, University of Northern Colorado
Mentor: Dr. Nancy Karlin, Professor, Department of Psychology
Oral Presentation Session #8, Room: Santa Ana A
Title: *How do human and AI-generated feedback differ in their effects on self-efficacy and motivation?*
Abstract: As artificial intelligence (AI) becomes increasingly integrated into everyday life, its influence on learning environments warrants close examination. While AI has traditionally been used to automate tasks in professional settings, a growing area of interest is its role in providing performance feedback. Human feedback has been shown to enhance learner motivation and self-efficacy, particularly through mechanisms such as verbal persuasion and the reinforcement of competence (Burgers et al., 2015; Dimotakis et al., 2017; Martinez et al., 2024). However, it remains unclear whether AI-generated feedback elicits similar effects. This study aims to explore how perceptions of AI feedback compare to perceptions of human feedback in their influence on motivation and self-efficacy. The guiding research questions are: (1) How do human and AI-generated feedback differ in their effects on self-efficacy? and (2) How do they differ in their effects on motivation? Grounded in Bandura's theory of self-efficacy and Deci and Ryan's self-determination theory, this research addresses a significant gap in the literature regarding AI's effectiveness as a feedback source in educational settings. A quantitative, between-subjects experimental design will be used, involving college student participants who will receive identical feedback framed as either human- or AI-generated. Findings from this study may inform the use of human response versus AI tools within the area of educational feedback and contribute to our understanding of feedback on learning in the digital age.

Aiello, Angelina - Major: Pre-Health Biomedical Sciences, University of Northern Colorado
Mentor: Dr. Mark Thomas, Professor, Department of Biology
Oral Presentation Session #9, Room: Lobo B

Title: *Investigating Dendritic Spine Plasticity and Drebrin Localization Following Chronic Fluoxetine Treatment in Adolescent Mice*
Abstract: Chronic fluoxetine treatment during adolescence may alter dendritic spine plasticity and drebrin expression in the prefrontal cortex, a brain region undergoing critical maturation during this period. As more adolescents are being prescribed antidepressants, it is crucial to understand how drugs like fluoxetine affect the developing brain. This study asks: what are the effects of chronic fluoxetine on prefrontal cortex plasticity and drebrin-mediated dendritic changes in adolescent (PND 35–50) mice? Research has shown that fluoxetine alters dendritic plasticity during adolescence, yet drebrin remains understudied, particularly in adolescent female models and within the prefrontal cortex. Influential literature demonstrated fluoxetine-induced changes to dendritic architecture, but their studies focused on adult and perinatal models and did not assess drebrin or sex differences. Drebrin is of importance to this study because it is a developmentally regulated F-actin-binding protein essential for dendritic spine formation and stability, making it a key marker of structural plasticity in the adolescent prefrontal cortex. My research will build on these findings by examining drebrin expression in the adolescent prefrontal cortex following chronic fluoxetine exposure. Including both male and female mice will help address a major gap in the literature on sex-specific effects of SSRIs during adolescence. In order to assess drebrin involvement and dendritic complexity, immunofluorescence will be used which will allow us to visualize where drebrin is located as well as the overall structure of dendrites.

Avila, Alfredo - Major: Nursing & Biology Minor, West Texas A&M University
Mentor: Dr. Erik Crosman & Dr. Jason Yarbrough, Assistant Department Head & Assistant Professor of Environmental Science, Department of Life, Earth and Environmental Sciences (LEES)
Oral Presentation Session #9, Room: Isleta
Title: *Investigation of dust storm particulate pollution episodes in the Texas Panhandle during March 2025*
Abstract: Particulate matter (PM) from dust storms is a health concern observed in many arid and semi-arid regions of the world. PM poses a threat to many vital organs, including the cardiovascular and respiratory systems, as smaller particulates penetrate deep into the lungs and bloodstream, causing tissue damage, inflammation, and other various systemic effects, including but not limited to reactive airway disease, chronic obstructive pulmonary disease (COPD), stroke, and ischemic heart disease. To examine the severity of particulate pollution during dust storms in the Texas Panhandle, a handheld, laser-based particle counter equipped with seven detection channels for PM sizes was utilized in March of 2025. Two dust storm case studies will be presented: March 14th, 2025, where widespread local generation of dust resulted from high winds in the Texas Panhandle, and March 18th, 2025, where dust plumes were transported from New Mexico and Mexico into the Texas Panhandle. This study documents the extremely unhealthy air associated with these dust storms, with observed PM2.5 concentrations over 400 µg/m3 (the 24-hour National Ambient Air Quality Standard for PM2.5 is 35 µg/m3). This is the first study, to our knowledge, to research differences in size distributions of particulate pollution in West Texas originating from different source regions. Unlike urban areas with frequent poor air quality, the Texas Panhandle does not have high public awareness of the impacts of poor air quality on health, and we recommend more public awareness campaigns to highlight the health risks observed during these rare but high-impact dust episodes.

Carter, Preston - Major: Mathematics, University of New Mexico
Mentor: Dr. Maxim Zinchenko, Professor, Department of Mathematics and Statistics

Oral Presentation Session #9, Room: Lobo A
Title: *Weighted General Chebyshev Polynomials*
Abstract: Approximating functions with polynomials and other functions is used frequently in engineering and physics to save computational resources. It is also useful at times to consider the weighted approximation of a function. This research covers the union of these two notions; the best weighted general approximation of a function, that is to say, the best weighted approximation of a function using other functions which may or may not be polynomials. To be specific this research looks at the characteristics of the weighted general Chebyshev polynomial and the characterization of the best weighted general approximation of a function. This is accomplished through adaptation of techniques used in the study of general Chebyshev polynomials and the study of weighted Chebyshev polynomials.

Dunakin, Katrina - Major: Social Work, Our Lady of the Lake University
Mentor: Dr. Jessie Andre, Assistant Professor, Department of Social Work
Oral Presentation Session #9, Room: Fiesta B
Title: *The Importance of Incorporating Self-Care Education in the Social Work Curriculum*
Abstract: This research is about whether Bachelor of Social Work (BSW) programs are preparing Social
Work students to practice self-care and prevent burnout before getting to practicum. The study will be mixed methods, with the quantitative survey being the existing Student Maslach Burnout Inventory, with 50 participants analyzed for consistency using Qualtrics. Participation in the quantitative survey will take 10-15 minutes. The qualitative interview will consist of semi-structured questions. The responses
will be thematically analyzed using Atlasti with 12-15 participants. Participation in the qualitative interview will take 30-45 minutes. Requirements for participation is that they must be BSW students within the United States who have completed at least one semester of field practicum in the past year. If research shows
that students feel burnt out after one semester of practicum, this could indicate why they may not
pursue their Master's of Social Work or end up leaving the profession altogether. This research could lead to better self-care practices for students and improve the retention rate for the profession.

Edwards, Trinity - Major: Rangeland Resource Science and Management , California State Polytechnic University Humboldt
Mentor: Dr. Justin Luong,
Assistant Professor of Rangeland Resources, Department of Forestry, Fire and Rangeland Management
Oral Presentation Session #9, Room: Trailblazer/Spirit
Title: *Comparing Responses of California Annual and Perennial Grasses Under Simulated Grazing and Extreme Drought*
Abstract: California grasslands are increasingly threatened by rising temperatures, declining precipitation, and increasing drought frequencies, which drive shifts from native to nonnative plant communities (González-Pérez et al. 2023; Luo et al. 2023; Funk 2021). Livestock grazing is one essential form of land stewardship, providing fire fuel reduction, money to rural communities, and food production to California's vast grassland landscapes (Barry et al. 2015; Teague and Kreuter 2020). Grazing also promotes native plant and animal diversity benefiting ecosystems and humans (Gennet et al. 2017).

Despite the recorded benefits of grazing and the studies on increasing drought frequency, there is limited research on how California grasses respond to grazing under extreme drought conditions (Luong, Press, and Holl 2023). This study examines the resistance and resilience of five native California grass species, including three annual species (Hordeum depressum, Festuca microstachys, and Muhlenbergia microsperma) and two perennial species (Elymus glaucus and Melica californica), under simulated grazing and drought conditions. In a controlled greenhouse environment, species were subjected to clipping and varying drought intensities to assess plant development and regrowth potential. This investigation aims to provide insights into the suitability of these five grass species for restoration projects where grazing occurs in the context of increasing drought frequency and intensity.

Gootee, Angie - Major: Cognitive Neuroscience, Harding University
Mentor: Usenime Akpanudo, Associate Professor, Cannon-Clary College of Education
Oral Presentation Session #9, Room: Luminaria
Title: *Effects of Generation Status and Parent Education Level On Imposter Phenomenon in Undergraduate Students*
Abstract: Navigating new environments and experiences opens people up to unrelenting self-doubt. The jump from high school to unexplored college territory is a particularly hazardous time for this manifestation. Undergraduate students are notorious for self-doubt and questioning. This self-doubt shows in imposter phenomenon scores. Imposter phenomenon, colloquially known as imposter syndrome, is when an otherwise successful person feels like a fraud. They often attribute their success to luck or a fluke, believing it will end in failure. Exploring how a student's family affects them in university can tell us much about the college experience. A non-probability convenience sampling survey was distributed to students to determine if there is a difference in imposter phenomenon among first-generation, continuing-generation, or legacy students. This study also analyzes any difference in imposter phenomenon scores with parent education levels, among other variables. This study found no relationship between imposter phenomenon and parent education level or generation status. We also found that women have significantly higher imposter phenomenon scores than men. This research can help universities know how best to assist students during the difficult transition period and which students may need more help than others. We can also help students directly with this research by letting them know being unsure is normal.

Hernandez, Julianna - Major: Cultural Anthropology, New Mexico State University
Mentor: Dr. Judith Flores-Carmona, Associate Professor, College of HEST at NMSU
Oral Presentation Session #9, Room: Santa Ana B
Title: *Leaving Children Behind*
Abstract: The No Child Left Behind act (2001) mandated and generalized Standardized Testing in K-12 schools nationwide. El Paso schools participated with the TAKS Test (Texas Assessment of Knowledge and Skills). The TAKS Test became a tool used against the marginalized border youth of El Paso by discriminating based on language skills. The test was only offered in English, subsequently, ESL (English as a Second Language) students were considered liabilities in test-taking. Overall scores counted toward monetary value awarded to schools and districts. These students were disenfranchised, dropped out, and were treated as undesirable in education, who inevitably internalized the treatment they received as students of EPISD.

Placticas and Testimonio Ethnography will be key to shaping this research with qualitative data. I'll be interviewing my old classmates and teachers about their experience in education from 2001 to 2013. There is a gap in literature and research on the discrimination El

Paso faces in its education that further dehumanizes us and treats us as disposable. This, therein, affects how the community views themselves and what it deems possible for them. Exploring the effects of hegemonic choices on the public education of Mexican-American students in El Paso could reveal the need for and importance of incorporating a border pedagogy. This may be necessary in the light of more recent and upcoming academic discrimination as relating to Vouchers in Texas.

House, Kiara - Major: Psychology, Washington State University
Mentor: Dr. Melanie Neuilly , Chair of Criminal Justice , Criminal Justice
Oral Presentation Session #9, Room: Santa Ana A
Title: *Gendered Constructions of Responses to Sexual Abuse*
Abstract: Sexual assault is predominately perpetrated by male offenders with female victims, this is a social invariant that has not been questioned much by research, contributing to the limited access of resources and support for victims who do not fall under the “norm”. The dominant explanation for this invariant is based on the pervasive nature of traditional gender roles, in which women are expected to inhabit a passive, weak role, leaving men to be either protectors or predators. The existing research on female sex offenders and/or male victims of sex offenses has focused on establishing typologies of victims and their experiences. In this research project, I use legal cases to find patterns of differences between the ways in which female and male sex offenders get treated in the justice system as well as well as how male victims are constructed using newspapers to identify relevant cases. I expect to find that female sex offenders are treated more leniently than male sex offenders, but also that male victims of sex offenses are constructed as having more agency than female victims.

Lambert, Sarah - Major: Computer Science, Concord University
Mentor: Mr. Lonnie Bowe, Assistant Professor of Computer Science, Computer Science
Oral Presentation Session #9, Room: Acoma B
Title: *Digital Resilience Within Library Institutions*
Abstract: This project explores the state of cybersecurity within library institutions, with a focus on the human factors that contribute to both vulnerabilities and protection. Using the HAIS-Q (Human Aspects of Information Security Questionnaire) as a framework, the study aims to assess the knowledge, attitudes, and behaviors of library staff and IT personnel. It similarly examines how emerging technologies like Linked Open Data (LOD) can introduce new risks when not properly managed. While data collection is ongoing, literature review and preexisting research suggests a strong link between low cybersecurity awareness and increased exposure to cyber threats. The project highlights the need for employee training, improved policy enforcement, and greater awareness of the cascading effects of cyber incidents. Final results will validate connections between LOD and cyber threats, continuing to offer practical recommendations to help libraries enhance their digital resilience.

Navarrete, Paige - Major: Natural Resources - Wildlife Conservation & Management, University of Arizona
Mentor: Bret Pasch, Associate Professor, School of Natural Resources & the Environment; Mount Graham Biology Programs
Oral Presentation Session #9, Room: Acoma A

Title: *Influences of Climate on an Endangered Squirrel Population and Food Availability in the Southwest United States*
Abstract: Authors: Paige Navarrete, Sean Mahoney, Nikki Reck, Vicki Greer, and Bret Pasch

Adoption of adaptive conservation management practices requires consistent reassessment of the relationships species share with their environment. The endangered Mt. Graham red squirrel (Tamiasciurus fremonti grahamensis; MGRS) population resides in an isolated ecosystem atop the Pinaleño Mountains in Graham County, AZ. This habitat is located within a range of the southwestern United States influenced by a unique bimodal precipitation system that supplies the majority of precipitation in an otherwise arid landscape. Currently, there is limited research on the effects of local precipitation and drought on the MGRS population. This study aims to take advantage of a long-term data set to investigate the effects of bimodal precipitation and temperature on seed and mushroom abundance within MGRS habitat using a set of time series analyses. Resulting trends reveal MGRS sensitivity to seed abundance and rising annual temperatures. While local precipitation influences mushroom abundance, a lack of influence on seed abundance may emphasize the importance of conserving forest and midden structures for seed resource maintenance. Updated assessments of the findings within this study will be necessary as climate extremes increase in frequency and severity throughout the American southwest. Through the analyses of such relationships within the Mt. Graham ecosystem, life history models for MGRS may be updated to better inform management decisions for the species and increase adaptive management capabilities.

Rodriguez, Briana - Major: Psychology , Our lady of the Lake University
Mentor: Dr. Melissa Shiplett-Jupe, Assistant Professor, Clinical Mental Health, Department of AA Education
Oral Presentation Session #9, Room: Fiesta A
Title: *Examining the Relationship between Parent Martial Status and Factors of Self-Efficacy and Resiliency*
Abstract: This MANOVA quantitative research study aims to understand the impact parental divorce has on first generation Latinx female college students by examining self-efficacy and resiliency. Self-efficacy and resilience are characteristics critical to re-enrollment and matriculation (Cassidy, 2015). According to divorce.com and Hispanic Association of College and University, members of Latinx communities have the second highest divorce rate when compared with other racial and ethnic groups. Additionally, Latinx student enrollment in higher education is expected to increase to more than 4.3 million by 2026 exceeding other racial and ethnic groups by a growth rate of 10 percent. Based on existing research exploring Latinx enrollment in higher education, Nora's Model of Student Engagement (2006) highlights the factors impacting Latinx students' persistence in higher education. This study utilizes Nora's Model of Student Engagement to explore divorce as a moderator of precollege and pull factors. Research done by UNIDOSUS (2024) highlights how parental divorce can impact Latinx students' decisions regarding re-enrollment and matriculation at exceedingly higher rates than their peers.
Existing literature provides the foundation of understanding many pre-college and pull factors. The goal of this current study is to expand on these factors detailing impacts on self-efficacy and resilience in first generation Latinx female college students potentially resulting in higher rates of reenrollment and matriculation. Results may provide implications in higher education regarding university policies, support systems, and methods to achieve greater student engagement.

Oral Presentation Abstracts Listed by Session

Friday, September 5, 2025 - Location: SUB Top Floor Rooms

An, Cris - Major: Forensic Psychology, John Jay College of Criminal Justice
Mentor: Dr. Emese Ilyes, Doctoral Lecturer, Department of Psychology
Oral Presentation Session #10, Room: Fiesta A
Title: *A Call to Reconsider Coercion as Carceral Practice: Analyzing the Absence of Critical Discourse of Coercive Measures in U.S. Child Adolescent Psychiatry Compared to International Contexts*
Abstract: Coercion in care is a discourse with a great amount of critical research done on it already, except in the US. Staff perspectives on coercion in psychiatric care and child and adolescent psychiatry (CAP) are a popular subject in essentially the rest of the world, namely Sweden, Australia, Norway, and Canada. When the US does come up in conversation, it is referred to in terms of our juvenile justice system or injustices against unhoused people. This work asks, how does the genealogy of coercion discourse reveal the mechanisms of power that maintain scholarly silence on coercive practices in U.S. child and adolescent psychiatry, particularly when compared to international contexts? A meta-ethnography, as well as Foucauldian discourse analysis, is implemented to answer this question of how coercion is problematized, conceptualized, and maintained in the US compared to international contexts. Overall, precedents within this discourse, especially in reference to carceral contexts and institutionalized care, are examined to critically assess the role historical and political knowledge has on coercion in CAP.

Brown, Collin - Major: Neuroscience and Cognitive Science | Molecular and Cellular Biology, University of Arizona
Mentor: Dr. Melville Wohlgemuth, Assistant Professor, Department of Neuroscience
Oral Presentation Session #10, Room: Lobo B
Title: *Adaptive Control of Spatial Orienting Behaviors During Dynamic Movement*
Abstract: We live in a complex sensory environment, and the brain must filter incoming information to guide adaptive behavior. Under natural conditions, the brain supports short-term and long-term control of goal-directed actions. Humans rely heavily on vision for active sensing, selectively attending to relevant stimuli and ignoring visual clutter. In contrast, echolocating animals like bats adapt these active sensing behaviors through auditory information returning from the environment. By emitting vocalizations and analyzing returning echoes, bats dynamically reorient to avoid obstacles and navigate cluttered environments. In previous research on stationary bats, we stimulated the brain to drive a sequence of orienting behaviors, specifically stimulating the superior colliculus, a midbrain structure important to spatial attention behaviors. Here, we investigate whether bats naturally perform similar behavior sequences during free flight. We trained Mexican free-tailed bats (Tadarida brasiliensis) to navigate a controlled flight space under open-air and cluttered conditions. Sonar call production was recorded using a single ultrasonic microphone, while 3D motion capture (16-camera system) tracked head, ear, and body movements. We analyzed behavioral components such as head and ear movements and sonar call production to characterize how the bat sequences its natural behaviors when changing spatial attention. This study provides a foundation to analyze how targeted brain stimulation during natural flight could modulate orienting behavior sequences. Ultimately, our work contributes to understanding the neural basis of active sensing and spatial attention in dynamic, real-world settings.

Oral Presentation Abstracts Listed by Session

Friday, September 5, 2025 - Location: SUB Top Floor Rooms

Canaday, Candis - Major: English, University of New Mexico
Mentor: Adrienne Warner, Undergraduate Engagement Librarian, College of University Libraries & Learning Sciences
Oral Presentation Session #10, Room: Santa Ana B
Title: *Accessibility and diversity in Open Educational Resources*
Abstract: Open educational resources (OER) are a new development in higher education. In the last 10 years, as OER have become more commonplace, criticisms around diversity and accessibility in content have arisen. The level to which OER are accessible and diverse can have an impact on student learning outcomes. Three main frameworks have been developed with the intent of providing a guide for how to create OER and evaluate their effectiveness in learning processes. Only the latest of these frameworks has taken accessibility and diversity into account. By developing a survey based on this framework and administering it to undergraduate students, an inference can be made on how students' learning outcomes correlate to the levels of diversity and accessibility that they reported experiencing in their course materials. Preliminary results from a survey sent to introductory English Composition and General Chemistry courses show that students who use accessibility software programs report having a more difficult time navigating their course materials. If this result is found to be true among a broader range of courses that utilize OER textbooks, it could be concluded that OER textbooks might not be very compatible with some accessibility software programs, which is putting disadvantaged students at an even further disadvantage.

Castro, Gilberto - Major: Double Major: Criminology & Psychology, Our Lady of the Lake University
Mentor: Dr. Jazmine Garcia, Visiting Professor, Criminology & Criminal Justice
Oral Presentation Session #10, Room: Fiesta B
Title: *Thinking Like the Predator:*
Cognitive Profiling and Behavioral Analysis in Serial Killer Investigation
Abstract: This study explores the psychological and tactical triggers of a serial killer's mind to commit repeated acts of violence. While traditional profiling methods often emphasize a serial killer's demographic characteristics and behavioral histories– this research shifts the lens towards the immediate stimuli influencing violent behavior during the act of the murder. Through the analysis of several case studies and transcript interviews with notorious serial killers, the researcher integrates psychological theories to identify common tactical triggers. The goal is to enhance criminal profiling models by prioritizing behavioral context over static characteristics; ultimately providing law enforcement with improved strategies for investigation and apprehension. Current profiling techniques are limited because they do not have predictive models for ongoing investigations that outline how the serial killer mind operates. Much like technical warfare, to be able to overcome your enemy, you must know how they think; this research aims to apply that mentality to apprehending and understanding serial killers.

Keywords: criminal profiling, psychology, serial killers, law enforcement, tactical triggers, criminal mind, predictive models

Dalton, Edmonde Beverly - Major: Criminal Justice and Psychology, Florida International University

Mentor: Ashley Pierre, McNair Advisor, McNair Scholar
Oral Presentation Session #10, Room: Luminaria
Title: *Culturally Responsive Mentorship: Addressing Conduct Behaviors in Second-Generation Immigrant Youth*
Abstract: Second-generation immigrant youth in the United States often navigate a complex intersection of cultural identity development, systemic inequities, and psychosocial stressors, which can increase their vulnerability to conduct-related behaviors and delinquency. These adolescents may experience acculturative stress, bicultural identity conflict, and racial or ethnic discrimination, all of which can disrupt their behavioral and emotional regulation during key developmental stages. While existing research has documented elevated behavioral risks among immigrant-origin youth, few studies have isolated second-generation youth as a distinct subgroup, and even fewer have explored culturally responsive interventions that address their unique needs. This study proposes investigating the potential of culturally responsive mentorship programs
as protective interventions that foster resilience and reduce the likelihood of delinquent behavior among second-generation immigrant adolescents. By examining mentorship through a culturally grounded perspective, this study has the potential to inform more equitable youth intervention strategies and guide future research in adolescent development, public policy, and education systems.

Eddy, Emily - Major: Psychology, Washington State University
Mentor: Kristen Delevich, Assistant Professor, Department of Integrative Physiology and Neuroscience
Oral Presentation Session #10, Room: Santa Ana A
Title: *Impact of Adolescent Isolation and Cannabis Exposure on Brain Development and Behavior*
Abstract: Adolescence is a critical period for brain development, particularly in the dopaminergic system which plays a central role in the onset of psychotic disorders. Environmental stressors, including drugs and psychosocial stressors, experienced during adolescence may contribute to the emergence of psychiatric disorders in adulthood due to the disrupting of ongoing developmental processes. One remarkable example is seen through mice research demonstrating dopamine axon innervation from the nucleus accumbens (NAc) in adolescence to the medial prefrontal cortex (mPFC) in adulthood. This late dopaminergic innervation of mPFC is pivotal for executive functions like behavioral inhibition and sociability. This study aims to investigate how adolescent cannabis exposure impacts dopamine axon innervation to mPFC (Experiment 1) and how combined effects of cannabis exposure and social isolation stress during adolescence impact mPFC-dependent behaviors into adulthood in mice (Experiment 2).
The first experiment will explore how cannabis vapor exposure during adolescence will affect dopamine innervation by collecting and analyzing brain tissue involved in the dopaminergic system for microscopy dopamine axon terminal quantification. The second experiment will introduce both cannabis vapor exposure and social isolation to assess their combined impact on behavior and brain development. The study aims to understand how certain stressors during the vital developmental period of adolescence influence the development of the dopamine system and adverse behaviors, providing insights into the pathophysiology of psychiatric disorders. Although there are limitations in translating findings to humans, this research lays the groundwork for future studies on the interaction between environmental stressors, neurodevelopment, and psychotic disorders.

Ejekwu, Ugonna - Major: Biology and Biochemistry, University of Maryland, College Park
Mentor: Seth Dickey, PhD , Assistant Professor, Department of Veterinary Medicine
Oral Presentation Session #10, Room: Acoma A
Title: *mVenus as a Reporter for the saeS, braS, and graS Genes in Staphylococcus aureus*
Abstract: Staphylococcus aureus is a common pathogenic bacterial species that can achieve adaptation through two-component signal (TCS) transduction systems. These systems typically consist of a histidine kinase (HK) that, when a ligand is bound, activates a response regulator (RR), leading to a programmed cellular response. Outside factors that modulate these systems in S. aureus leading to adaptation are poorly understood. The present study employed the fluorescent protein mVenus as a reporter for the activity of the three TCS systems saeS, GraS, and BraS. In order to observe this activity, we cloned plasmids that contained the saeP1 promoter, vraD promoter, and the vraF promoter and transformed them into S. aureus. We plan to induce system activity and sort activation signals based on flow cytometry.

Gonzalez, David - Major: Mathematics (Pure and Applied) and Computer Science, University of Northern Colorado
Mentor: Dr. Joshua Guerin, Assistant Professor, Department of Mathematical Sciences
Oral Presentation Session #10, Room: Lobo A
Title: *Exploring the Efficiency of Neuro-Symbolic Generative AI with Logic-Based Learning*
Abstract: We propose a study on the efficiency and performance of a neuro-symbolic Artificial Intelligence (AI) model that combines logic-based learning with neural networks. Neuro-symbolic AI has gained traction in recent years, especially for its potential to address two major challenges in current AI systems: sustainability and explainability. The sustainability problem comes from how resource-intensive AI has become, pushing the need for more efficient models. The explainability problem centers on transparency and the ability to hold model creators accountable to ethical standards. This project focuses on integrating Inductive Logic Programming (ILP), which produces logic rules, with Answer Set Programming (ASP) and Graph Neural Networks (GNNs). The idea is to test whether this kind of hybrid system can achieve comparable performance to standard models while using less data and computing power. While symbolic AI excels at reasoning and neural networks at pattern recognition, combining them offers the potential of both strengths. Despite several existing frameworks, there's still not enough benchmark data showing how these systems perform when it comes to efficiency. To explore that, we'll train and evaluate a custom model using public datasets like MNIST and IMDB. The main goal is to figure out whether this type of integration offers a viable path forward for building AI systems that are more transparent and less resource-intensive.

Murphy, Theo - Major: Microbiology, California Polytechnic University Humboldt
Mentor: Dr. Christine Foreman , Professor, Department of Chemical & Biological Engineering, Montana State University
Oral Presentation Session #10, Room: Trailblazer/Spirit
Title: *From Moss to Microbes: Overcoming Microbial DNA Extraction Challenges in Sphagnum Moss*
Abstract: Permafrost peatland ecosystems are expected to thaw at a large scale within the century. As the planet's atmosphere rises in temperature, permafrost thaws, resulting in the release of organic carbon in soils. Sphagnum moss fixes over 50% of peatland carbon, a process that is attributed to gametophyte peatland coverage in addition to the plant's

microbiome. Sphagnum is host to diazotrophic methanotrophs, contributing to carbon and nitrogen cycles in permafrost peatlands.
The effects of climate warming, shifts in pH, and moisture changes on the Sphagnum microbiome with respect to carbon and nitrogen cycling in extreme cold environments is unclear. Based on experimental warming studies, we hypothesize that diazotrophy and methanotrophy decouple in Sphagnum-associated microbial communities as atmospheric temperatures increase.
In order to address our hypothesis, we need a reliable DNA extraction protocol for the extraction of 16S rRNA gene sequences from Sphagnum gametophyte samples. Due to Sphagnum's complex molecular biology, DNA extraction may be inhibited throughout various stages of the extraction process. Using the Qiagen DNeasy Plant Pro Kit, we explored varying treatments in order to maximize DNA yield and produce viable products for 16S rRNA gene amplification and microbial metagenomic sequencing.

Smith, Risa - Major: Biochemistry, University of New Mexico
Mentor: Eliane El Hayek, Research Assistant Professor, College of Pharmacy
Oral Presentation Session #10, Room: Isleta
Title: *Identification of Potential Molecular Interference of Lipids and Micro(nano)plastics During Pyrolysis Gas Chromatography-Mass Spectrometry Analysis*
Abstract: Micro and nano plastics (MNP), ranging from 500 µm to 1 nm in size, are ubiquitous in the environment and have been detected in human tissues, including the brain. Their small size allows them to infiltrate biological systems, raising concerns about their potential toxicity. MNP exposure has been linked to DNA damage, organ dysfunction, neurotoxicity, and reproductive toxicity. The brain is rich in lipids such as cholesterol and sphingolipid, which is essential for maintaining membrane structure, signaling, and aids in brain waste clearance. Any alterations in lipid turnover within the brain or disruptions in cellular lipid balance may significantly contribute to the onset of neurodegenerative diseases. This study aims to simulate potential interactions between brain lipids and plastics by spiking cholesterol and sphingomyelin with a known amount of polyethene or a mixed polymer standard. Here, our focus is on understanding how lipids and polymers interact and how chemical extraction techniques can aid in re-separating these components to improve molecular quantification in mass spectrometry analysis. The methodological approach consists of sequential digestion using potassium hydroxide (KOH) followed by secondary solvent washes (cyclohexane or nitric acid) to degrade lipids while preserving polymer integrity. Digested lipid samples with varying conditions will be analyzed using the pyrolysis gas chromatography-mass spectrometry (Py GC-MS) at the College of Pharmacy at the University of New Mexico. This project will provide insight into how lipids and plastics may interfere with molecular detection and quantification in Py GC-MS.

Vasquez, Kassandra - Major: Marketing, Information Systems and Art (Triple Major), New Mexico State University
Mentor: Dr. K.T. Manis and Dr. Blaugrund, Assistant Professor and College Professor (Respectively), Makreting (both)
Oral Presentation Session #10, Room: Acoma B
Title: *Exploring Public Perception and Ethical Boundaries of AI in Marketing Systems through Social Media Discourse*
Abstract: This study examines public perceptions of Artificial Intelligence (AI) in marketing, with a particular focus on the ethical dilemmas arising from AI-driven consumer engagement. As AI continues to evolve

and integrate into marketing practices—enhancing efficiency, enabling deeper consumer connection, and at times replacing human interaction—it raises critical questions about authenticity, transparency, and responsibility. We began with a systematic review of FT-50 business journal articles using PRISMA guidelines, followed by thematic coding to identify core issues. To further enrich our analysis, we explored public sentiment from X (formerly Twitter) and incorporated secondary data from the World Values Survey. These combined insights inform a set of proposed ethical promises, pitfalls, and “guardrails” tailored to different types of AI-consumer interactions.

Coffelt , Parker - Major: Biology (Pre-Health track) & Chemistry (Pre-Health track) , University of Northern Colorado
Mentor: Dr. Andrea James , Associate Professor , Department of Biological Sciences
Oral Presentation Session #11, Room: Isleta
Title: *CBD's effect on gastrulation and vascular formation*
Abstract: As marijuana has been decriminalized and legalized in many U.S. states, the use of cannabidiol (CBD), a non-psychoactive compound derived from cannabis, has significantly increased. While CBD is commonly used to manage various physical and mental health conditions in adults, its potential impact on early embryonic development remains largely unstudied. This gap in knowledge is particularly important in cases of prenatal exposure, such as when CBD is used during pregnancy and reaches the developing embryo. Preliminary findings from our lab suggest that CBD exposure may interfere with critical developmental processes in zebrafish, including impaired tail formation, reduced overall size, and abnormal motor function. Notably, early observations indicate disruptions in gastrulation and the presence of leaky vasculature in the heart. This ongoing project aims to investigate these developmental effects in greater detail by imaging phenotypic differences between untreated (wild-type) and CBD-exposed zebrafish embryos prior to gastrulation. We are particularly interested in how CBD may hinder epiboly, a key movement during gastrulation. Furthermore, we will explore vascular development using kdrl:mCherry transgenic zebrafish, which express fluorescent markers in endothelial cells, to better understand the mechanisms behind the observed vascular leakage and potential failure of epithelial barrier formation.

Delgado, Fernanda - Major: Speech, Language, and Hearing Sciences, University of Arizona
Mentor: Dr. Genesis Arizmendi, Assistant Professor, Speech, Language, and Hearing Sciences
Oral Presentation Session #11, Room: Santa Ana B
Title: *Creating Emotionally Protective Experiences for First-Generation Hispanic High School Students Entering Higher Education Environments*
Abstract: The transition to higher education institutions for first-generation Hispanic students from the U.S./Mexico Borderlands can often feel isolating and overwhelming. The purpose of this study is to evaluate the impact of a culturally responsive campus visit designed to mitigate impostor-related self-doubt and promote belonging among first-generation Hispanic high school seniors from the Borderlands who are considering attending the University of Arizona. Using a mixed methods approach, I designed a survey with open-ended and Likert-scale items to understand the participants' perceptions of the culturally responsive campus visit using both qualitative and quantitative data. The participants included 17 high school seniors from a high school in the U.S./Mexico Borderlands. All participants identified as members of an

underrepresented racial and/or ethnic group. Their responses highlighted the significance of the resources provided to this group of students (Campus Closet and Pantry, Thrive Center, Cultural Resource Centers, etc.), as well as the positive impact that cultural representation had on their experience on the university campus. Findings suggest that intentional integration and implementation of culturally responsive elements into the campus visit experience can help address feelings of imposter phenomenon and lack of belonging by connecting students to relevant resources and environments where they feel a sense of safety and comfort. By acknowledging the cultural and environmental mismatches that first-generation minority students often experience on a university campus, higher education institutions can implement actionable strategies to foster a more inclusive learning environment.

Diaz, Haley - Major: Chemistry, University of New Mexico
Mentor: Dr. Jun-Yong Choe, Associate Professor, Department of Chemistry and Chemical Biology
Oral Presentation Session #11, Room: Lobo A
Title: *A Multidisciplinary Approach to Optimizing GLUT3 Inhibitor Binding Through Analog Design and Validation*
Abstract: Cancer cells frequently overexpress the glucose transporter GLUT3 to support their elevated metabolic demands, making GLUT3 a compelling therapeutic target. G3iA, a known GLUT3 inhibitor, competitively blocks glucose uptake and has demonstrated anticancer potential. My project aims to optimize G3iA by designing and synthesizing analogs with improved binding affinity. Using structure-guided design informed by literature and docking studies, I created six analogs varying a substituent in the G3iA scaffold. I performed molecular docking using AutoDock Vina and molecular modeling to visualize binding within the GLUT3 binding site. Two analogs showed enhanced predicted binding affinity. Building on this, I am currently working to synthesize G3iA to reconfirm its thermodynamic behavior and establish a baseline for comparison. Despite synthetic challenges and equipment limitations, this project integrates computational chemistry, organic synthesis, and biochemistry to explore new avenues in drug discovery. Future work will include protein purification, isothermal titration calorimetry (ITC), and ^{14}C-labeled uptake assays to assess binding energetics and pharmacokinetics. This research not only contributes to GLUT3-targeted cancer therapy but also reflects a broader interest in merging computational and experimental methods to accelerate innovation in medicinal chemistry.

Fofana, Magou - Major: Forensic Psychology, John Jay College of Criminal Justice
Mentor: Dr. Jessica Arenella, Adjunct, Department of Psychology
Oral Presentation Session #11, Room: Luminaria
Title: *Unmet Psychological Needs: Impacts of Acculturation on Immigrant-Origin CUNY students help seeking*
Abstract: Immigrant-origin college students have varying attitudes towards help seeking. Acculturation to the dominant American culture may play a role in the formation of these attitudes. This study conducted in a City University of New York public university examined the impacts of acculturation on American college students' attitudes towards help seeking. In a sample of 100 students, participants completed a survey questionnaire by either scanning a digital code or using the online SONA system. Through the use of the Attitudes Towards Seeking Professional Psychological Help Scale (ATSPPHS) and the Stephenson Multigroup Acculturation Scale (SMAS), the study measured acculturation and attitudes. Results would indicate immigrant-origin students having lower levels of acculturation than nonimmigrant origin

students and higher levels of acculturation corresponding to more positive attitudes towards help seeking while lower levels of acculturation demonstrating more negative attitudes. The findings provide college administration reasoning to attune mental health centers to increase help seeking amongst immigrant-origin students.

Gramajo, Bryan - Major: Physiology , University of Arizona
Mentor: Dr. David Latt/Dr. Chris Arellano, Associate Professor with Tenure/Associate Professor, Both are a part of the Department of Orthopedic Surgery and the Department of
Oral Presentation Session #11, Room: Acoma A
Title: *Reimagining Joint Analysis: Evaluating a Markerless Motion Capture System*
Abstract: Accurate measurement of joint angles is critical in physical therapy, but most clinical environments still rely on manual tools, which can lack accuracy; although advanced motion capture systems offer a more precise solution, they are often too costly and complex for routine clinical use. This pilot study evaluates the concurrent validity of iMagine, a markerless, AI-powered motion capture system, against the gold-standard Vicon system, a marker-dependent motion capture system, for measuring ankle dorsiflexion and plantarflexion. Five healthy adult participants completed repeated ankle flexion movements while simultaneously being recorded by both systems. Mean peak dorsiflexion and plantarflexion angles were compared using statistical methods to assess agreement and the relationship between the two systems. It is expected that the Imagine system will demonstrate comparable results, with minimal differences and strong correlations, supporting its potential as a clinically viable tool for assessing ankle joint range of motion. If validated, the iMagine markerless motion capture system could offer clinicians an accessible, cost-effective alternative with the potential to enhance rehabilitation outcomes and improve quality of life for individuals with mobility impairments.

Jackson, Brandon - Major: Psychology, University of New Mexico
Mentor: Dr. Samuel McKenzie, Assistant Professor, School of Medicine Neuroscience
Oral Presentation Session #11, Room: Lobo B
Title: *Cell Assembly Membership in the Hippocampus*
Abstract: Memory is believed to be encoded by changes in the synaptic strength between neurons. Within the hippocampus, changes in the synapse are needed for long-term memory consolidation, however, it is not known how neural activity during learning affects subsequent changes in synaptic strength. This project consisted of two experimental parts: inducing plasticity by using optogenetics and inhibiting lasting plasticity by using drugs to prevent CAP-dependent protein translation. The plasticity induction section of the experiment tested the plasticity rules governing the excitatory synaptic strength with inhibitory neurons. It is well known that coincident activity of pre- and postsynaptic neurons is needed for plasticity inductions. Therefore, we prepared mice in which the neural activity of two connected cell populations could be independently controlled. To induce plasticity, excitatory and inhibitory cells expressed opsins that were sensitive to different wavelengths of light. Pulsing both wavelengths simultaneously increased cell assembly membership which means that inhibitory cells are important for cellular assembly recruitment. To disrupt normal plasticity we utilized PKR mice in which consolidation of synaptic plasticity is disrupted by reducing protein translation. Using this chemogenetic approach, we found that both excitatory and inhibitory cells had an increased firing rate while in a novel context for a second time. A higher firing rate is a biomarker for novelty. Together these experiments show the importance of the inhibitory neuron in cell assembly membership recruitment and the importance of synaptic-related proteins in memory consolidation.

Juarez, Jonathan - Major: Data Science and Economics, California Polytechnic University, Humboldt
Mentor: Dr. Xinyu Duo and Dr. Rob Jackson, Dr. Xinyu Duo [Postdoctoral Scholar] and Dr. Rob Jackson [Professor], Department of Earth System Science at Stanford University
Oral Presentation Session #11, Room: Trailblazer/Spirit
Title: *Methane on the Map: A Multi-Source Approach to Monitoring Anthropogenic Emissions Using Satellite, Surface, and Machine Learning Data*
Abstract: Methane (CH_4) is a highly potent greenhouse gas, and emissions from the livestock sector represent a major share of global anthropogenic CH_4. Current livestock emission inventories would benefit from being more frequent and complete, improving their usefulness for near-real-time monitoring and policy applications. This study develops an improved bottom-up inventory model for livestock CH_4 emissions, designed to produce near-real-time, gridded estimates at 0.1° × 0.1° resolution using activity data and IPCC emission factors. We integrate multi-source activity data from FAOSTAT, USDA, UN Comtrade, and WITS for nine key animal types; asses, buffaloes, camels, cattle, goats, horses, mules, sheep, and swine, across the top 20 methane-emitting countries. To address critical data gaps, we incorporate auxiliary socioeconomic predictors such as market prices, national GDP, and population. Missing livestock populations were imputed using Random Forest, Bayesian Ridge, and XGBoost, which provided complete activity datasets for calculating livestock CH_4 emissions. This approach improves temporal resolution from annual to near-monthly updates, with inventories extended through 2024. The resulting model enhances the spatial and temporal completeness of livestock methane inventories, enabling more precise methane tracking, trend analysis, and uncertainty quantification. For future work, this framework can support verification of mitigation measures under the Global Methane Pledge, be expanded to additional agricultural sectors, and provide a foundation for comprehensive, near-real-time methane emission inventories. Ultimately, this system strengthens our capacity for climate reporting and advances data-driven methane management strategies.

Price, Desirae - Major: A double major in BA Anthropology and BA in Linguistics; Minor in International Relations , New Mexico State University
Mentor: Dr. Mark Waltermire , Professor , Department of Languages and Linguistics
Oral Presentation Session #11, Room: Fiesta B
Title: *Relational resonance and language*
visibility across Aotearoa: A mixed methodology of linguistic landscaping shaped by cultural experience through etic engagement
Abstract: As world becoming more divided, more than ever cross cultural ties through language and culture may answer more questions on how the global community may develop a stronger connected world through acknowledging a deeper understanding of etic engagement as international researchers. By means of linguistic landscaping, this ongoing research asks how does language across Aotearoa's three largest cities engage and shape the experience of the outsider; and it asks does this interaction with language contribute to relational sustainability? Rather than approach from an ethnographic perspective, this research focuses on language display in public spaces through the eye of a visitor and utilizes frequency charts, and autoethnographic practices like journaling, to bring awareness of connections made through language being seen and heard. This research highlights the importance of language visibility, ethics, policy, accountability, decolonial practices, and needed connectivity through cultural learning to ultimately create a sustainable future for the global community.

Rubio-Lobaton, Kevin - Major: Finance, Our lady of the lake university
Mentor: Dr Watts , Professor , Business Finance
Oral Presentation Session #11, Room: Acoma B
Title: *The Perceived Impact Of AI On Business Decision-Making an Operation Efficiency*
Abstract: This study examined how business and IT leaders perceive the role of artificial intelligence (AI) in enhancing decision-making and improving operational efficiency. As AI adoption grows, leadership perspectives are key in shaping implementation strategies and addressing ethical challenges. The research addressed a gap in understanding how leaders' views influence ethical decision-making, implementation practices, and responses to AI's limitations. Using a qualitative comparative case study, data were collected through interviews and surveys with cybersecurity product managers, IT departments, and university technology leaders. Participants' trust in AI-generated insights varied based on their technical understanding of AI systems. Concerns included algorithmic bias, ethical transparency, policy enforcement, and rapid technological obsolescence. Findings showed that AI improves efficiency by automating tasks and enabling data-driven decisions, but leaders stressed the need for human oversight, formal policies, and continuous training to ensure responsible use. Leadership perspectives were found to be central to ethical AI integration. Future research should explore ways to reduce AI bias, assess long-term integration impacts, and create sustainable frameworks that balance ethical priorities with evolving technology.

Simmons, Kathryn - Major: Triple: Pre-Med, Sociology, Psychology, University of Colorado Boulder
Mentor: Dr. Ryan Curtis, Dr. Corey McZeal, Department of Sociology
Oral Presentation Session #11, Room: Fiesta A
Title: *Stigma and Placement Instability in the U.S. Child Welfare System*
Abstract: Motivation:
This study explores how behavioral and mental health checklists in the child welfare system influence stigma and placement instability for foster youth. The study aims to provide insights into how stigma in placement decisions impacts foster youth, with the goal of improving placement outcomes and reducing problematic labeling in child welfare systems.
Research Questions:
Do these checklists perpetuate stigma by indicating youth as "difficult to place," and how does placement instability impact former foster youth emotionally and psychologically? Secondary questions examine the effect of the number and type of checkboxes on placement outcomes, and whether providing additional context can improve decision-making in placements.
Methods:
Part 1:
20 structured qualitative interviews with child welfare professionals and former foster youth to understand the broader systemic causes of placement instability and the psychological effects of stigmatizing checklists.

Part 2
A Qualtrics survey administered to 1,000 CU Boulder students via the CU SONA subject pool, presenting them with simulated placement forms to assess roommate suitability and how different combinations of checklist items and contextual information affect perceptions of placement suitability. There will be two roommate profiles; a "good roommate" and a "bad roommate" that is informed by the results of a pilot study conducted. There will be four

conditions, contextual background provided vs. not, outdated history removed vs. retained, which roommate profile and individual receives.
Expected Results (Hypotheses):
Providing background information and removing outdated concerns will increase placement likelihood.
More checkboxes will negatively affect placement decisions.

Vargas, Jennifer - Major: Psychology , Northeastern Illinois University
Mentor: Dr. Andrew Young, Professor, Research, and Lecturer , Department of Developmental Psychology
Oral Presentation Session #11, Room: Santa Ana A
Title: *Cognitive Reflection Predicts Gender Essentialism In Girls, But Not Boys*
Abstract: Research shows that cognitive reflection, the ability to override intuitive responses, is related to adults' essentialist thinking. Essentialism is the belief that certain traits or characteristics are innate and unchangeable (e.g., girls are born liking dolls and boys are born liking trucks). Understanding factors involved in essentialist thinking is important because adults and children with more essentialist beliefs tend to exhibit more social bias and prejudice. Our study examined cognitive reflection and essentialist beliefs in children. We conducted an online experiment with 5-12-year-old children (n = 185; Mean Age = 9.17 yrs; 51% female). We measured their cognitive reflection using the CRT-D (example item: "Emily's father has three daughters. The first two are named Monday and Tuesday. What is the third daughter's name?"). We also measured their essentialist thinking about gender (example item: "Do you think Andrew can change whether or not he is a boy if he wants to?"). Girls with higher cognitive reflection scores had fewer essentialist beliefs about gender, $r = -0.334$, $p < 0.001$. However, there was no relationship between cognitive reflection and gender essentialism in boys, $r = 0.060$, $p = 0.574$. These results suggest that the connection between essentialist thinking and cognitive reflection emerges early in development. Further, this connection is highly context-dependent – reflective thinking predicted gender essentialism in girls, but not boys. Future research will explore the mechanisms underlying this gender difference and whether interventions aimed at enhancing cognitive reflection can have a lasting effect on children's social belief systems.

Canler, Adam - Major: Psychology, Southeastern Oklahoma State University
Mentor: Dr. Jospeh Rudolph-Simons, Assistant Professor, Department of Behavioral Sciences
Oral Presentation Session #12, Room: Santa Ana A
Title: *Exploring the Relationship of Emotional Intelligence and a Growth Mindset*
Abstract: Growth mindset, the belief that intelligence and abilities are malleable and can be developed through effort, has been linked to academic achievement, resilience, and improved mental health. Emotional Intelligence, the ability to perceive, understand, and manage emotions, similarly predicts academic success, adaptive coping, and motivation. Despite overlapping benefits and theoretical connections, there has been little research examining the direct relationship between the two constructs. This study examined the correlation between a growth mindset and emotional intelligence and also investigated whether emotional intelligence could predict the presence of a growth mindset in undergraduate students. Participants (N=22) completed an online survey including demographic measures, the Subjective SES Scale (Adler et al., 2000), the Emotional Intelligence Scale (Husain et al., 2022), and the Intrinsic Thoughts, Emotions and Behaviors Questionnaire (Schleider and Weisz, 2016). Results demonstrated a significant positive correlation between a growth mindset and EI. Regression analysis also demonstrated that EI was a significant predictor of a growth mindset among participants. These

findings suggested that higher emotional intelligence is associated with stronger growth mindset beliefs, highlighting the connection between the underlying mechanisms in each construct.

Guerrero Rivera, Katherine - Major: Criminology and Criminal Justice , University of Maryland, College Park
Mentor: Nancy Raquel Mirabal, PhD, Associate Professor , Department of American Studies
Oral Presentation Session #12, Room: Luminaria
Title: *Always the Same, Always Effective: The Ever Evolving and Cruel Rhetoric of U.S.-Salvadoran Migration Policies.*
Abstract: Both of Donald Trump's administrations can be characterized by a fiercely anti-immigrant stance that has included inflammatory rhetoric and language. Since the beginning of his second term, Trump has exhibited a disregard for legal precedent– deporting undocumented migrants to a third country and allying with the President of El Salvador, Nayib Bukele, to illegally detain and incarcerate men without due process. Salvadoran men, like male migrants from Venezuela, have been uniquely conflated as criminals and gang members related to MS-13. What role has anti-immigrant propaganda and rhetoric played in the rise of extreme anti-immigrant policies and actions that criminalize migrants and position them as an ever-impending threat to U.S. democracy?

Through a content and discourse analysis of a range of U.S. news articles, Salvadoran news, and social media posts by the Trump Administration, it is possible to determine to what extent rhetoric and propaganda have contributed to our current understanding concerning migration from Latin America. What ideas are conjured up by the images and specific language used by some of these outlets, such as "illegal," "threat," and "invasion?" How do they challenge or reinforce the criminality of Salvadoran men? From the research conducted, it is clear that conservative news outlets employ propagandistic terms designed to promote a more outwardly negative, misinformed, and polarized image of migrants in comparison to center and left-leaning media which do not appear to have a similar political agenda.

Herrera, Nathan - Major: Exercise Science, University of New Mexico
Mentor: Dr. Len Kravitz, Professor and Program Coordinator, Exercise Science
Oral Presentation Session #12, Room: Acoma A
Title: *Effect of Resistance Training on Type 2 Diabetes*
Abstract: The prevalence of chronic diseases such as type 2 diabetes mellitus (T2DM) continues to rise, posing a serious threat to public health. T2DM is primarily linked to insulin resistance, pancreatic β-cell dysfunction, and oxidative stress, and is often associated with age, obesity, physical inactivity, and genetic predisposition. Individuals with T2DM are at greater risk for cardiovascular complications, impaired metabolic regulation, and reduced physical independence. Exercise has emerged as a low-cost, nonpharmacological strategy to improve insulin sensitivity and glycemic control. To gain these metabolic adaptations, physical training must challenge the musculoskeletal and metabolic systems beyond habitual activity. Although the exact molecular mechanisms remain under investigation, current research indicates that resistance training improves HbA1c levels, fasting glucose, and muscle mass, all of which contribute to better metabolic health. Evidence from

randomized controlled trials and meta-analyses suggests that resistance training can match and positively enhance the cardiovascular benefits of aerobic exercise. Resistance training meaningfully increases skeletal muscle mass, supporting physical independence in aging women and men populations. Individualized resistance training programs offer a promising intervention for managing and preventing T2DM, particularly when individually tailored for the age, physical limitations, health, and exercise history of a patient.

Hunt, Roddy - Major: Communication Sciences and Disorders, University of Northern Colorado
Mentor: Dr. Caitlin Raaz, Associate Professor, Department of Communication Sciences and Disorders
Oral Presentation Session #12, Room: Santa Ana B
Title: *Barriers in Access to Speech-Language Pathology Services for Latine Caregivers of Young Children in Colorado*
Abstract: Latine families in the United States face a range of barriers when accessing speech-language pathology (SLP) services, yet these challenges remain underexplored in the broader literature. This study seeks to address that gap by identifying and examining the specific barriers encountered by Latine caregivers in Colorado when seeking SLP services for their children. As the Latine population continues to grow, evidence shows that Latine children are often not receiving timely interventions, raising concerns about potential adverse developmental outcomes. While previous research has explored access issues through narrower lenses—such as focusing on specific diagnoses—there is limited understanding of broader, systemic, structural, and cultural challenges. This project will involve 2–3 interviews and 30 surveys. Thematic analysis of interviews will illuminate the lived experiences and recurring obstacles caregivers face, while survey data will provide demographic context and highlight common barriers. I anticipate the findings will reveal intersecting factors that contribute to disparities in access, reflecting the broader inequities faced by historically marginalized populations. The goal of this research is to support SLP professionals in improving outreach and service delivery to Latine families, ultimately promoting more equitable and timely care for children from underserved communities.

Johnson, Fondren - Major: Forensic Psychology, John Jay College of Criminal Justice, CUNY
Mentor: Dr. Lior Gideon, Associate Professor, Psychology
Oral Presentation Session #12, Room: Fiesta A
Title: *Punishment or Care: Exploring Factors Associated with Incarceration Versus Psychiatric Diversion in Individuals with Serious Mental Illness*
Abstract: This research aims to investigate factors associated with incarceration versus psychiatric diversion for individuals with serious mental illness (SMI). Utilizing a mixed-methods design, the study explores individuals' perspectives on law enforcement encounters, perceived unmet needs, and systemic experiences in criminal justice and mental healthcare systems. Data collection involves semi-structured interviews with adults diagnosed with SMI, recently incarcerated or diverted, supported by institutional policy analysis. It is hypothesized that insufficient community mental health crisis services and restrictive diversion criteria are associated with incarceration. Findings aim to inform policy.

Lara, Orlando - Major: Biology, University of Chicago
Mentor: Dr. Sho Yano, Assistant Professor, Department of Pediatrics

Oral Presentation Session #12, Room: Lobo B
Title: *Characterizing an intronic variant to understand wide disease severity variation among patients with ATP1A3 splice variants*
Abstract: Alternating hemiplegia in childhood (AHC) is a neurological disorder categorized by recurrent episodes of paralysis on either side of the body. AHC is caused by heterozygous missense ATP1A3 variants that produce altered protein. Counterintuitively, “null” variants that completely eliminate ATP1A3 expression can be asymptomatic. Additionally, it is unknown whether splice site variants cause any disease. Surprisingly, we identified a patient with AHC and an ATP1A3 c.2542+1G>A splice variant, even though this variant is predicted to be “null” via nonsense-mediated decay (NMD). Our research aims to understand whether this splice variant affects splicing and produces an altered protein to shed light on genetic mechanisms of phenotypic variability in ATP1A3-related disease. To do so, we constructed and successfully validated a minigene system to measure splicing of the last introns of ATP1A3. This system will allow us to test whether the c.2542+1G>A splice variant causes abnormal splicing that triggers NMD. If abnormally spliced RNA is detectable, the variant likely does not trigger NMD, indicating that the splicing effect of a variant might be used to predict whether or not the patient will develop AHC or remain asymptomatic. If variant minigene RNA is undetectable, this would imply that NMD was activated and variant mRNA was degraded. This suggests that other factors influence whether a “null” variant produces a disease phenotype. Thus, better understanding of ATP1A3 splice variants would improve prognostication for this condition.

Lopez , Sailyn - Major: Molecular and Cellular Biology, University of Arizona
Mentor: J. Ross Buchan, Assistant Professor , Molecular and Cellular Biology
Oral Presentation Session #12, Room: Isleta
Title: *Colocalization of Ash1 mRNA with Ded1 and Edc3 in Stress Granules and P-Bodies During Heat Stress*
Abstract: Saccharomyces cerevisiae yeast is a powerful model for investigating fundamental eukaryotic processes, including RNA metabolism and stress response. While gene-tagging technologies have enhanced understanding of protein function, understanding transcriptome-wide mRNA behavior, especially during stress, remains limited. To address this, we are constructing an mRNA tracking library in yeast. Using innovative molecular tools such as Halo/SNAP tags and the MS2-MCP system, our work builds on existing live-cell mRNA imaging methods within yeast models. As proof of principle, we have used these tools to study if the ASH1 mRNA localizes to cytoplasmic biomolecular condensates implicated in mRNA fate regulation, termed stress granules (SGs) or P-bodies (PBs), following heat shock. Following live-cell fluorescence microscopy of Halo/SNAP-labelled Ash1 mRNA, and GFP/RFP-tagged protein markers of SGs and PBs, we found that Ash1 mRNA may colocalize to stress granules (SGs) or P-bodies (PBs) during heat shock in S. cerevisiae, implying that its translational regulation is responsive to environmental stress. The observed colocalization of Ash1 with markers Ded1 (stress granules) and Edc3 (P-bodies) may indicate that Ash1 mRNA may be selectively stored or degraded under stress conditions, potentially to preserve cellular energy or regulate asymmetric protein distribution.

Melendez, Chloe - Major: Mechanical engineering, California State Polytechnic University, Humboldt
Mentor: Dr. Joshua Steimel, Associate Professor, School of engineering
Oral Presentation Session #12, Room: Lobo A
Title: *Investigating Composite Materials of PLA and PLA+*

Abstract: This study investigates the mechanical performance of fiber-reinforced polymer composites fabricated via Fused Deposition Modeling (FDM) additive manufacturing, focusing on PLA and PLA+ matrices. Tensile specimens were printed with fibers aligned at 0°, 45°, and 90° relative to the loading direction, following ASTM D638 Type V standards. Mechanical testing revealed that fiber orientation significantly influences stiffness and tensile strength, with specimens printed at 90° exhibiting the highest Young's modulus (2.77 GPa), consistent with micromechanical model predictions using the Rule of Mixtures and Halpin-Tsai equations. Specimens at 45° showed slightly lower stiffness, attributed to improved interlayer bonding rather than optimal load alignment. A Mathematica-based simulation was developed to model stiffness variation with fiber angle, providing a practical design tool. These results demonstrate the critical role of fiber alignment in optimizing composite properties for additive manufacturing applications. The findings support the potential of PLA-based composites in sustainable and cost-effective 3D printing of structural parts, while highlighting the need for further research on failure mechanisms to improve reliability and performance in engineering contexts.

Morales Jr., Ruben - Major: Justice, Political Philosophy, and Law & Sociology, New Mexico State University
Mentor: Dr. Sabine Hirschauer, Associate Professor, Department of Government
Oral Presentation Session #12, Room: Fiesta B
Title: *"Filed, Forgotten, Deported: When the System Becomes the Sentence"*

Abstract: This research project examines how the judicial system can become a quiet enabler of executive-led immigration enforcement under a securitization guise – particularly focusing on an extension of the executive, localized federal courts in the Paseo del Norte region; what I term the judicial arm. Through the lens of securitization theory and Giorgio Agamben's concept of bare life, this project examines how migrants are reduced to their biological presence, stripped of political voice, and funneled through judicial processes that conceal, rather than curb, structural violence. Drawing from courtroom observations, interviews, and fieldwork in the Paseo del Norte region, I argue that while the courtroom's procedural form creates the illusion of neutrality, its routine procedures often serve as theatrical mechanisms through which state violence is sanitized and executive power legitimized. Migrants often suffer most in this routine, prosecuted for the mere fact of crossing space and turned into subjects of surveillance rather than citizens of due process – ultimately handled through legal rituals that prioritize deterrence over justice. Historically courts in the U.S. have acted far from a check on executive overreach – at pinnacle times the judicial system has functioned as an institutional buffer, absorbing political pressure and diffusing it through bureaucratic language and procedural discretion. This study contends that the violence of enforcement is not merely physical or spectacular – it is administrative, rhetorical, and legal. It is the kind of violence that erodes rights under the guise of law, and silences dissent through the slow normalization of exception.

Sepulveda, Johnathan - Major: Cybersecurity, Michigan Technological University
Mentor: Dr. Ronghua Xu, Assistant Professor, Applied Computing
Oral Presentation Session #12, Room: Acoma B
Title: *Securing Digital Evidence Using Blockchain*
Abstract: With advancements in Information Technology ever growing, analyzing and storing digital evidence in a safe, non volatile way has become more crucial than ever in order to solve the growing amount of cybercrime investigations. Handling digital evidence can be a problem

due to its volatility and just how important it can be to a case.The idea behind this project is to have a blockchain based system that tracks the chain of custody that evidence flows through in order to maintain a clear history of what is being done with evidence. A working test prototype was developed featuring a frontend interface, smart contract layer, and backend logic, enabling secure registration, transfer, and retrieval of evidence all working on a local machine. This project demonstrates that blockchain can be a powerful tool in digital forensics, offering transparency, immutability, and enhanced trust in the chain of custody process.