Poster Presentation Abstracts Session #2

1:00 to 2:00 p.m. Thursday, September 10, 2026- Location: SUB Bottom Floor Atrium

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

Bennett, Isabella - Major: Exercise Physiology, The College of St. Scholastica
Mentor: Dr. Lisa Kappes, Associate Professor & Academic Internship Coordinator, Department of Exercise Physiology
Title: Physical Activity and Exercise Effectiveness in Assisted Living Facilities: A Rural and Urban Perspective
Abstract: BACKGROUND: Rural assisted living facilities (ALFs) often lack consistent exercise programs, specialized staffing, and preventative healthcare services found in larger urban ALFs, where cost of staff is spread over a large quantity of residents. In geriatric populations, sedentary lifestyles accelerate muscle loss and increase fat accumulation, reducing stability and increasing falls. Injuries sustained in a fall can further reduce independence and lead to increased risk for mental health and cognitive decline. PURPOSE: The goal of this study is to determine whether there is a statistical difference in residents' fitness levels in rural and urban ALFs. METHODS: 13 participants (seven rural and six urban; aged 68-96) from four facilities completed individual fitness assessments. Participants' demographics and blood pressure medication usage was recorded. Participants completed an activity of daily living (ADL) questionnaire, bilateral grip strength tests, and Berg Balance scale assessments to evaluate coordination and proprioception. RESULTS: A One-Way ANOVA confirmed that rural residents had statistically significant higher average dominant grip strength (M=21.31kg) compared to urban residents (M=12.83kg; p=.014). This was maintained in non-dominant grip strength averages with rural residents scoring higher (M=21.71kg) than urban residents (M=12.72; p= .020), ensuring $p < .05$ across all primary averages. However, Berg Balance scale assessment results did not differ statistically. CONCLUSION: Data from this study will be used to improve geriatric care in ALFs through exercise programs for improved quality of life and maintained independence.

Bustos-Ataide, Galilea - Major: Psychology, California State University, Monterey Bay
Mentor: Dr. Helen Fann, Assistant Professor, Human Development and Family Science
Title: Examining Media Exposure and Parenting Intentions in Young Adults
Abstract: Extant literature suggests that psychological (e.g., attachment style) and social (e.g., gender role attitudes) factors influence an individual's desire to have children. With nearly a quarter of Millennial and Generation Z young adults reporting not wanting to have children, there is growing interest in understanding how behaviors like media consumption may shape parenting intentions. To date, little is known about young adults' exposure to media representation of parenthood, and the manner through which they encounter parenting-related content. The present study examines young adults' patterns of consuming parenting-related content. A survey was administered to young adults attending CSUMB who did not yet have children and were between the ages of 18 and 45 (N = 225; Mage = 22.6). Results show participants consume more media depicting positive aspects of parenting (e.g., parenting as a source of pride and joy; M = 2.91, SD = 0.96) versus negative aspects (e.g., childrearing costs; M = 2.58, SD = 0.93). Participants also most frequently encountered parenting-related content through both social and traditional media, although they also commonly consumed topics via social media alone. These findings suggest that young adults are being exposed to parenting-related media across multiple platforms, and this may shape their

expectations and plans for future parenthood. Additional research is needed, however, to better understand how media exposure, alongside other psychological and social influences, contributes to young adults' decisions about whether to become parents.

Canchola, Dalia - Major: Psychology, California State University, Monterey Bay
Mentor: Dr.Jennifer Dyer-Seymour, Professor, Department of Psychology
Title: Employers' perception of the vital competencies for successful employment as a college graduate in 2026
Abstract: A majority of employers reported utilizing skill-based hiring methods in 2025. Employers believe that many undergraduates lack the skills needed to secure the jobs they want upon entering the workforce (NACE, 2025). The knowledge, skills, and abilities that employers apply in their employment are referred to as "competencies" (Carnevale et al., 2021). This study aims to answer whether the order in which survey questions are presented influences employers' open-ended responses. This research study used an open-ended survey to ask employers to identify the five knowledge, skills, or abilities they value most in college graduates they may work with or hire. Of the 68 employers, 41 ranked 56 competencies before providing five skills in an open-ended response (Group 1), while the remaining 27 provided five skills before ranking the competencies (Group 2). We have found that Group 1 listed communication, work ethic, personality traits, career-specific skills, and adaptability to changing situations as their top skills. Whereas Group 2 listed communication, personality traits, career-specific skills, working with others as part of a team, and flexibility/shifting gears. Both groups valued communication, personality traits, and career-specific skills. Additional analyses are being conducted to examine whether question order influenced employers' responses. These observations suggest that displaying these top three competencies may increase recent graduates' employability and ability to transition successfully into the workforce. These findings serve as a useful tool for students, faculty, and career counselors to better prepare graduates for successful transitions into the workforce.

Chavez, Dennis - Major: Chemical Engineering, University of Connecticut
Mentor: Dr. Gaël Ung, Associate Professor, Department of Chemistry
Title: Remote Chirality Transfer with Shibasaki-type Lanthanide Complexes
Abstract: Circularly Polarized Luminescence (CPL) has attracted significant attention due to its applications in 3D imaging, optical encryption, biological sensing, and quantum computing. When synthesizing molecular systems capable of CPL, it is typical to start with enantiopure chiral ligands to direct the synthesis toward a single enantiomer with strong CPL activity.

Here, an alternative strategy is explored in which chiral auxiliaries are introduced to initially non-enantiopure complexes to determine whether the mixture can be directed toward a single enantiomeric species.

The non-enantiopure chiral ligand used in this study is binaphthol (BINOL), and the enantiopure chiral auxiliaries are (R,R)-tetramethyldiaminocyclohexane ((Me)4DACH), (R,R)-tetramethyldiphenylethylenediamine ((Me)4DPEN), and (R,R)-

tetraisobutyldiaminocyclohexane ((iBu)4DACH). Additionally, the lanthanide metals used to prepare the initial complexes were ytterbium and erbium.

The nuclear magnetic resonance (NMR) spectrum of the initial complex indicates that some stereocontrol is present prior to the introduction of the chiral auxiliaries. Although the enantiopure chiral auxiliaries have not yet been introduced, these preliminary results suggest that additional sterocontrol may be achievable.

Cortez, Gisela - Major: Finance and Accounting, Cleveland State University
Mentor: Dr. Hamilton Galindo GII, Assistant Professor, Finance
Title: The Impact of Artificial Intelligence on the Labor Market for Entry-Level Accounting Positions
Abstract: Artificial intelligence (AI) is changing the accounting profession by helping complete repetitive tasks faster and more accurately. This study will examine how AI is affecting entry-level accounting jobs in the Cleveland area and what skills employers expect from new accountants. The research will use surveys, interviews, and job postings to collect information from accounting students, professionals, recruiters, and college faculty. It will also examine how colleges are preparing accounting students to use AI and other new technologies. The results may help students understand the skills they need to prepare for their careers and help colleges adjust their accounting programs. Overall, this study will provide a better understanding of how AI is changing entry-level accounting jobs and preparing future accountants for the workplace.

Dekker, Chloe - Major: Wildlife ecology, conservation, and management, California State Polytechnic University, Humboldt
Mentor: Dr. John Pfeiffer and Dr. Sean Keogh, Dr. John Pfeiffer - Museum Curator of Bivalves
Dr. Sean Keogh - Peter Buck Fellow, Department of Invertebrate Zoology
Title: Don't move a mussel: tracking the invasion history of a freshwater mussel using DNA barcoding
Abstract: Toxolasma parvum is a freshwater mussel species native to the Mississippi River Basin. In recent years, growing evidence suggests its distribution has expanded to multiple disjunct river drainages along the Atlantic Slope, eastern Gulf Coast, and additional upper Mississippi waterways. To confirm these non-native populations and identify the sources of invasion, this study integrates data collected from museum records at the Smithsonian National Museum of Natural History with newly collected specimens to analyze DNA barcode sequences of cytochrome c oxidase subunit I (COI) and NADH dehydrogenase subunit I (NDI). Phylogenetic analysis reveals that populations from each non-native drainage are monophyletic, suggesting that each population resulted from an independent introduction. Toxolasma parvum is an obligate parasite during the larval life stage on Lepomis (sunfish) game fish and is one of the few freshwater mussels that is hermaphroditic. These life history traits may have facilitated its invasion, particularly its association with sunfish, one of the most commonly stocked game fish in North America. Our phylogenetic results, along with mapping the historical range of T. parvum using museum collection records, provide a hypothesis for the origin

of the non-native populations. Our study provides a blueprint for how conservationists can leverage natural history collections with phylogenetics to reconstruct the invasion history of exotic species.

Diaw Chimere, Abibatou - Major: Computer Science, University of Colorado Denver
Mentor: Dr. Farnoush Banaei-Kashani, Associate Professor, Department of Computer Science and Engineering
Title: Kàddu: A Wolof Language Technology Project
Abstract: Wolof, among 88% of African languages, remains largely underrepresented from natural language processing research and tooling (Issaka et al., 2025), despite being spoken by over 15 million people across the globe in Senegal, The Gambia, Mauritania and parts of the diaspora.

This work addresses that gap by constructing a 41- document, four-domain Wolof text corpus (educational, fictional, poetry, and religious material) and using it to evaluate how an existing Wolof-aware NLP toolkit handles Wolof's agglutinative nature and diacritic heavy orthography.

Building on this evaluation, we propose a design framework intended to guide future development of Wolof translation and language-learning tools.

Dominique, Alexandria - Major: Psychology, University of Connecticut
Mentor: Dr. Renee Trueman and Dr. Ryan Talbert, Director of McNair Scholars and Assistand Professor, Center for Access and Postsecondary Success and Department of Sociology
Title: The Relationship Between Neurocognitive Functioning, Depression, Suicidal Ideation, and Attractiveness in Athletes
Abstract: Many individuals play sports growing up, but most discontinue after college, while only a few make it to professional leagues. Playing contact sports such as football, soccer, and hockey leads to a high risk of concussions. While sports can improve self-esteem and physical health, the same is not always true for neurocognitive health. Existing research has examined Chronic Traumatic Encephalopathy (CTE) in former professional athletes and found that post-concussion athletes perform worse in verbal memory. This study examines the association between sports participation, neurocognitive functioning, depression, suicidal ideation, and perceived attractiveness. Using Waves IV and V of the National Longitudinal Study of Adolescent to Adult Health, neurocognitive functioning was measured by the number of words participants recalled during 60- and 90-second tests. Results suggest that individuals who played a sport within the past 7 days recalled fewer words. Basketball players remembered 1.68 fewer words, while tennis players remembered 2.16 more words. On average, females recalled more words while playing a sport within the past 7 days. Using Wave III, athletes were slightly more depressed than non-athletes. Wave I results showed that basketball players were perceived as the most attractive, athletes were viewed as more well-groomed, and soccer players were less likely to have suicidal ideation. Overall,

sports participation affects neurocognitive functioning, depression, suicidal ideation, and perceived attractiveness.

Espinoza, Lilliana - Major: Chicana/o Studies, San Jose State University
Mentor: Dr. Christine Vega, Assistant Professor, Department of Chicana/o/x Studies
Title: Queer Chicana MotherWork
Abstract: Objective: Recent Chicana Feminist scholarship strongly supports research on Intergenerational Trauma (susto), Indigenous Healing, and Resistance among the criminalization of Chicana Mothers. My research explores the lived experiences of five queer Chicana Mothers who were born and raised on the East Side of San José, California impacted by gang violence and drug addiction. The study examines the following impacts centering the following research questions: 1.) What connection does gang violence and drug addiction have between their intersecting identities of gender, class and sexuality? 2.) What specific role does colonization contribute to the development of Intergenerational Trauma (susto)? 3.) How does Intergenerational Trauma (susto) influence current experiences with gang violence and drug use? lastly, 4.) How can acknowledging reconnecting with Indigenous consciousness and traditions support healing intergenerational trauma? Method: Applying qualitative data collected through testimonios (testimonials) and pláticas (conversation) with Chicana Mothers provides in-depth analysis for common themes. Results: Preliminary findings aimed to understand how colonization and Intergenerational Trauma (susto) affects present experiences with gang violence, drug use, the health and well being of Chicana Mothers. Conclusion: Based on preliminary findings, this study illustrates whether colonization has negatively impacted Chicanas family lineage through the inheritance of intergenerational trauma, and whether Indigenous healing and consciousness can heal susto while supporting the safety and stability of Chicana Mothers.

Flores, Cristopher - Major: Industrial Engineering/Mathematics, Colorado State University Pueblo
Mentor: Dr. Himadri Gupta, Professor, Engineering
Title: Quantifying Operating-Room Resilience Through Workforce Network Analysis and Simulation
Abstract: Hospitals must keep surgeries running when staff become unavailable or demand surges, yet operating-room resilience is rarely measured, and historical data seldom contain a disruption large enough to study directly. This project treats the surgical workforce as a network and tests disruptions through simulation. Using five years of operating-room data from a pediatric hospital (169,561 cases, 1.5 million staff assignments, 3,433 staff, eleven locations), we will first map which staff can cover which services and measure how much backup each service has, identifying critical staff whose absence would leave cases uncovered. We will then build a discrete-event simulation of the operating rooms and run what-if scenarios, such as losing part of the anesthesia team, a demand surge, or a location closure, to measure how far surgical throughput drops and how quickly it recovers. Finally, an optimization model will determine where cross-training adds the most resilience.

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Garcia-Castro, Karen - Major: Landscape Architecture, Colorado State University
Mentor: Dr. Elicia Ratajczyk, Research Scientist & Network Facilitator, Institute for the Built Environment
Title: Better Jobs Closer to Home - Living Regions Lab: Advancing Regional Wellbeing from Parachute to Aspen
Abstract: The Institute for the Built Environments' Living Region Lab examines how regional systems like housing, transportation, employment, and healthcare, influence the well-being and quality of life within the region. The project focuses on the Colorado Roaring Fork region and the growing displacement of working-class Latinx communities as housing costs rise, making it difficult for residents to live near their place of employment. Using ethnographic research methods, community based participatory research, and systems mapping, the research team gathered perspectives from Latinx community members, Spanish-Speakers, housing development representatives, and aging communities. Through conducted focus groups within the community, we found rising themes in challenges surrounding local employment, long-distance commuting, overcrowded housing, and childcare. This regional report seeks to gather a strong understanding of the interconnected systems that contribute to the displacement and inequity of the region. The findings will support stakeholders, community leaders, and residents to collaborate in order to form better decision making and improve access to resources and local economic opportunities.

Gonzalez, Jesika - Major: Environmental Science & Management emphasis in ecological restoration, California State Polytechnic University, Humboldt
Mentor: Dr. Gene-Hua Crystal Ng, Assiosciate Professor, Department of Earth and Environmental Sciences
Title: Evaluating multi-year lake level and ecological changes under variable climate and land-use in the Otter Tail River Watershed, Minnesota
Abstract: In the U.S. Midwest, climate change and land use are altering natural ecosystems, including native wild rice. Wild rice (Ojibwemowin: Manoomin, Dakodiapi: Psiŋ) is an aquatic plant deeply intertwined with the Great Lakes ecosystem. Not only does it provide food and shelter, but it is held sacred by the Anishinaabe nations. Impacts on wild rice have been shared through oral history, but specific hydrologic impacts within the Otter Tail Watershed in northwest Minnesota are less well known. Through a University-Tribal collaboration, observations from Indigenous Knowledge holders and local harvesters have documented a decline in wild rice. This study investigates the cultural significance and impacts these changes, particularly water level fluctuations, have on wild rice in the watershed, which serves as a vital harvesting area for the people of White Earth Nation. Biophysical data has been collected in the watershed for over 3 years. These assessments have been conducted using automated pressure sensors deployed in piezometers (for groundwater) and stream gauges (for surface water). This study focuses on calibrating and processing sensor data using manual water level and survey measurements, generating a record that compares multiyear water level records. Fluctuations will be compared against climate conditions and surrounding agricultural land use in the corresponding year. Using existing interview data, approved by White Earth Research Review Board, secondary analysis was

conducted in NVivo to identify key environmental drivers in the watershed. This study provided new insights about the hydrologic variability of lakes in the Otter Tail Watershed that affect Manoomin.

Hailu, Eden - Major: Neuroscience, Colorado State University
Mentor: Dr. Emily Merz, Associate Professor, Department of Psychology
Title: Timing Matters: Early Adversity is Associated with Amygdala Volume in Emerging Adulthood
Abstract: Cumulative early adversity increases risk for mental health problems in adulthood. Changes to amygdala structure may be part of the neural mechanisms underlying these associations. The effects of early adversity on amygdala structure are theorized to depend on the timing of exposure to adversity. Yet, the effects of cumulative early adversity on amygdala volume and whether effects depend on timing of exposure are not well understood. The goal of this study was to examine associations of cumulative early adversity (0-18 years) and adversity during specific developmental periods with amygdala structure in emerging adulthood. Participants were 70 18- to 19-year-olds (53% female; 67% non-Latine white). Participants completed the Stress and Adversity Inventory (STRAIN) which asks about exposure to 55 different major life stressors. Structural magnetic resonance imaging data were acquired and used to compute Amygdala volume. Using the STRAIN data, scores were computed for cumulative early adversity (ages 0-18), early childhood adversity (ages 0-7), late childhood adversity (ages 8-12), adolescent adversity (ages 13-18). Higher cumulative early adversity was associated with smaller amygdalar volume. When exposure during different developmental periods was examined, greater exposure to adversity during late childhood was associated with smaller amygdalar volume. Results suggest that cumulative early exposure to adversity is associated with decreased amygdalar volumes in emerging adulthood. Adversity during late childhood was associated with decreased amygdalar volumes, but adversity during early childhood and adolescence were not. These findings align with the theory that exposure to adversity during different developmental periods may have differential effects on the amygdala.

Hassen, Mussa - Major: Data Science, Colorado State University
Mentor: Dr. Emily King, Associate Professor, Department of Mathematics
Title: Equivariance of Gray Level Co-occurrence Matrices
Abstract: The Gray Level Co-occurrence Matrix (GLCM) is a widely used tool for measuring texture in images. It works by counting how often pairs of gray-level values occur next to each other at a set distance and direction. GLCMs are applied across radiology, remote sensing, and materials science to classify images and regions of interest, and they are practical for producing effective numerical features from image data. It has not been fully established how a GLCM changes when the input image itself is transformed, for example, by rotation or reflection. This project addresses that gap using group theory. We study the dihedral group D4, the eight symmetries of the square, and show that rotating an image by multiples of 90 degrees cyclically permutes the four direction matrices that make up a GLCM. Reflecting the image also permutes these matrices and transposes each one. In both cases, the transformation follows a fixed

rule, and the GLCM does not need to be recomputed from the transformed image. We extend this perspective to finer rotation groups such as C8, C12, and C16, where intermediate angles require interpolation between existing directions, and discuss how the same pattern suggests an extension toward continuous rotation. Understanding this equivariance has practical value: it allows researchers to construct rotation-invariant texture descriptors by averaging over these transformations, without retraining a model or collecting additional rotated training data; and provides a mathematically explicit characterization of rotational behavior rather than relying on learned invariance, as done by classical deep learning methods.

Hitchcock, Kelsey - Major: Biochemistry, The College of St. Scholastica
Mentor: Mark DeLong, Professor, Department of Chemistry, Fond Du Lac Tribal and Community College (FDLTCC)
Title: Occurrence and Profiles of PFAS in Fingernails and Serum from Adults in Cloquet, MN
Abstract: 'Forever chemicals', a family of substances that persist and bioaccumulate due to the unique stability of their C-F bonds show detrimental health effects at low levels, leading the Environmental Working Group (EWG) to recommend a 0.001 ppt limit in drinking water. Considering this, the lack of human exposure data for these polyfluoroalkyl substances (PFAS) is noticeable. This data gap may exist because testing methods have required more expensive, invasive, impractical blood draws for the large groups needed to build human exposure data. This is especially relevant to communities where tests show PFAS levels above EWG recommended safety guidelines, like Cloquet, MN, a rural community neighboring tribal lands where PFHxS levels are 3,000 times this limit, and which is underrepresented in biomonitoring. Establishing low-burden testing methods is pertinent to increasing biomonitoring to fill this gap. Multiple PFAS were quantified in fingernails and serum as paired matrices of 18 human participants. Findings contribute to filling both a regional and community-specific data gap. The need for human contamination data is growing proportionally to the body of evidence on the harms of PFAS as human populations encounter these contaminants. This study helps establish fingernail analysis as a low burden (i.e., affordable, accessible, less invasive) biomonitoring method that will address this need and prepares for and acknowledges the developing urgency for future medical and public health research on the human health impacts of PFAS contamination.

Katosic, Eli - Major: Psychology, California State University, Monterey Bay
Mentor: Dr. Jennifer Lovell, Associate Professor, Department of Psychology
Title: "The experience of actually doing work in my field": Students express value of service learning
Abstract: Service learning fosters reciprocal community relationships, enabling students to critically engage with social justice and professional skill-building, while local partnerships strengthen their capacity to pursue their missions (Ellerton et al., 2014; Owens et al., 2025). There is substantial research supporting service learning as a High Impact Practice, but there are few studies comparing perceived value of lower- and upper-division courses. Cal State Monterey Bay is unique because it offers lower- and

upper-division service learning built into the curriculum. The present study examined the following research question: Is there a difference in perceived benefits of service learning between lower- and upper-division students? This study employed a secondary analysis of the Fall 2025 Student Evaluation of Service-Learning Experience (SESLE) survey, an anonymous, 24-item survey with qualitative and quantitative items. Participants included 912 students (60% response rate). Inductive thematic analysis was used to analyze free response data provided by lower-(n = 195) and upper-division students (n = 474). The three most common themes across lower- and upper-division courses were the same, respectively: Making Connections (34.87%, 26.5%); Giving Back to the Community (25.64%, 18.57%); and Greater Understanding (22.56%, 22.36%). The fourth highest theme differed between the two samples with Working with a Population (17.44%) appearing in lower division responses, and Professional Experience (18.57%) appearing in upper division responses. This aligns with upper-division learning outcomes related to career readiness, and reflects upper-division students' likely goal of gaining career relevant experiences.

Kokko, Jimi - Major: Environmental science, Keweenaw Bay Ojibwa Community College
Mentor: Dr. Bob Rabin, Adjunct Instructor, Environmental Science Department
Title: Does Lake Superior's Keweenaw Bay impact severe weather in Baraga County, Michigan: A feasibility study
Abstract: Lake Superior's Keweenaw Bay may be creating a microclimate. The highest terrain in Baraga County experiences lake-effect snow, while areas along the shore experience an increase in significant severe weather events, including large non-lake-effect snowfalls, floods, derechos, and damaging hail. Higher elevation areas only miles away from the lake observe storm development that impacts the communities nearby. Cases of damaging wind and hail impact these higher plains areas.

These storm events may be influenced by bay-enhanced storm activity. In this localized phenomenon, Keweenaw Bay energizes and intensifies storms, similarly to conditions that cause lake-effect snow, but on a smaller, localized scale. Additional factors such as terrain and storm direction also determine the severity of the impact, while temperatures can vary greatly by location.

A network of weather-monitoring equipment was deployed to capture real-time data at key locations, allowing for analysis between bay-adjacent and inland areas. Standard meteorological data was collected through Ambient weather stations and CoCoRaHS rain gauges. Additional data include MRMS precipitation estimates, satellite data, GIS, and manual observations across multiple seasons.

While this pilot research is ongoing, recorded observations and documented data may indicate a correlation between the lake and enhanced weather. Findings support the need for continued ground monitoring and higher-resolution analyses, such as satellite data, to study bay-scale atmospheric conditions. Further research and monitoring are necessary for complete data analysis.

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Monjes-Lempa, Yemilee - Major: Interdisciplinary Studies, Northeastern Illinois University
Mentor: Dr. Erica Krueger, Instructor and HRD Undergraduate Student Advisor, Nontraditional Degree Programs
Title: ALGORITHMIC BIAS IN DIGITAL SYSTEMS ACROSS RACE AND SKIN TONE: EFFECTS ON USER EXPERIENCE
Abstract: The rise of technology has opened up new opportunities and ways of seeing the world. However, technology has also increased algorithmic bias in digital tools, especially those that use Artificial Intelligence (AI) systems. Among these challenges are forms of visual discrimination and racism toward people of African descent with darker skin tone complexions, through the ability to visually identify features of these individuals. This study examined how the underrepresentation of Black and other racialized individuals creates algorithmic biases in AI-driven tools that impact racialized users, and what that reveals about digital equity and technological fairness. By examining user experiences and how digital inequities harm Black, Brown, and other people of color, critical questions about fairness and equity in technology design can be raised. An IRB-approved survey on user experiences engaging with technology and a structural comparison of two AI language models: ChatGPT and AfrofeminasGPT, a model designed with a racialized perspective, were the two approaches of this research. Technology-related biases were analyzed through usability testing, structured observation, and data-driven analysis. Findings revealed differences in how the two AI language models represented and responded to race-related educational prompts, as well as disparities in racial inclusion when generating images from neutral prompts. This study advocates for digital and technological racial inclusivity in product and service development that accurately represents Black individuals, with particular attention to darker skin tones. It also encourages the implementation of testing and design standards protocols, extending to the usability of technology for other members of the BIPOC community.

Nasende, Lobobi - Major: psychology, Cleveland State University
Mentor: Vickie C. Gallagher, Associate Proffesor, Business Department
Title: Refugee Community Center Wellbeing, Satisfaction, and Unmet Needs: Qualitative Insights
Abstract: Refugees and immigrants often experience difficulties such as language barriers, lack of resources, and adjusting to a new environment. Resettlement centers often help by offering support, education, and networking opportunities. This qualitative study is the first phase of a broader mixed-methods project that will investigate the well-being, satisfaction, and unmet needs of clients and staff at a refugee and immigrant community center in Northeast Ohio. Focus groups and interviews were conducted with 15 participants, including staff and clients. The data were analyzed using inductive thematic analysis. Four key themes were found: belonging, well-being, support, and unmet needs. Participants described the center as a comfortable and welcoming

environment in which they felt accepted, supported, and confident. A number of individuals said that the center improved their quality of life by offering English classes, emotional support, and useful services. However, participants noted several unmet needs, such as transportation, childcare services, larger facilities, more job opportunities, and English course certifications. These findings will be used to create a culturally applicable survey for roughly 100 clients in Phase 2. The study will help strengthen the community center's services, while also contributing to future studies on refugee and immigrant well-being. Keywords: refugees, immigrants, community centers, resettlement centers

Norton, Aaron - Major: Oceanography, California State Polytechnic University, Humboldt
Mentor: Dr. Tamara Baumberger, Assistant Professor, Oregon State University, College of Earth and Ocean Sciences, Geology and Geophysics Unit
Title: Using Helium as a Hydrothermal Tracer for Nutrient Transport in the Southern Ocean
Abstract: The Southern Ocean is a massive high-nutrient low-chlorophyll environment where net primary productivity is limited by the amount of dissolved iron in surface waters. A phytoplankton bloom has been observed consistently forming annually above the KR1 section of the Australian Antarctic Ridge (AAR), with hypotheses towards hydrothermal iron being the supplier for the annual bloom. A large hydrothermal plume over the AAR was recently discovered and sampled on the research expedition NPB-2411, confirming the source of dissolved iron and warranting further analysis. Understanding how natural iron fertilization contributes to primary productivity and carbon sequestration provides an analogue for artificial upwelling and iron fertilization as a climate change remedy. Dissolved gases from the plume samples will be extracted and analyzed for the He-3/He-4 ratio and its distribution evaluated. He-3 is a conservative primordial gas only released through mantle outgassing; the He-3/He-4 ratio will be used as a tracer to understand where hydrothermal outputs, including iron, are being transported. We expect to add to the existing dataset of helium isotope ratios from the NPB–2411 expedition samples. This data will illustrate the extent of the hydrothermal plume along the selected transect and the evolution of the helium isotope ratio along the depth profiles of the CTD casts. Our goal is to interpret where the plume and its nutrients are being influenced by ocean currents and determine whether this path corresponds to the phytoplankton bloom location.

Perez-Lopez, Edgar - Major: Psychology, San Jose State University
Mentor: Dr.Lesther Papa, Assistant Professor, Department of Psychology
Title: Watch Your Mouth: The Effects of Racial Microaggressions on Cortisol
Abstract: The study examines the impact of racial microaggressions on cortisol levels, highlighting inconsistent findings across various research methodologies. Microaggressions, subtle discriminatory actions, are linked to stress and can raise cortisol levels, a hormone released in response to stress. Some studies suggest that frequent microaggressions blunt cortisol response, making it less available for future stressors, while others reported increased cortisol levels. The divergence in results may

be due to differences in research designs, such as cross-sectional, interpersonal research, or nomothetic, versus longitudinal, intrapersonal research, or idiographic approaches. Combined, the results of each type of research proves chronic and acute impact of microaggressions. The research underscores the complexity of generalizing findings due to individual and ethnic variability in stress responses. Additionally, methods of cortisol measurement, such as salivary and hair cortisol, may account for discrepancies. The findings emphasize the need for standardized, consistent methodologies to accurately capture the effects of microaggressions on stress physiology and call for increased awareness and detection of microaggressions to mitigate their harmful impacts.

Post Stein, Jonathan - Major: Psychology, University at Buffalo
Mentor: Dr. Leonard Epstein, SUNY Distinguished Professor, Department of Pediatrics
Title: The IMPACT Pilot Study: Diet and Physical Activity in a Weight-Loss Intervention for Women with Food Insecurity and Obesity
Abstract: Food-insecure women are 1.5 times as likely to have obesity and 2–3 times as likely to have type 2 diabetes as food-secure women, independent of caloric intake. The insurance hypothesis proposes that undependable access to food causes physiological and psychological adaptations that increase fat storage. In a stepped-wedge delayed-start pilot trial, ten women with obesity (BMI ≥ 30), food insecurity, and prediabetes (HbA1c 5.7%–6.4%) or family history of type 2 diabetes received weekly behavioral counseling and tailored meal provisioning. This analysis used daily MyNetDiary (diet) and Fitbit (physical activity) tracking to characterize how diet and activity changed and identify factors associated with weight loss and dietary improvement. Logs were summarized into daily measures of macronutrient composition, diet quality, meal-timing regularity, and physical activity; diet measures excluded two participants with implausible records. All ten participants lost weight (~7.7 lb at treatment end, ~9.1 lb at follow-up), and diet composition improved during meal provisioning, with protein rising and carbohydrate falling. More low-intensity physical activity was associated with greater weight loss ($r = -.84$, adjusted $\beta = -.70$, $p = .06$), adjusting for baseline weight. Lower baseline food reinforcement of energy-dense food was associated with greater diet-quality improvement ($r = -.85$, adjusted $\beta = -.68$, $p = .07$), adjusting for baseline food score. In this pilot, more physical activity was linked to greater weight loss, and lower baseline food reinforcement to greater diet-quality improvement. Future, larger studies with a control group are needed to test whether these mechanisms replicate.

Rodriguez, Bianka - Major: Botany, California State Polytechnic University, Humboldt
Mentor: Dr. Alana Chin, Assistant Professor, Department of Biological Sciences
Title: Searching for the Resistance: Phloem as an Internal Hydraulic Resistor Regulating Twig Water Uptake
Abstract: Predicting tree species' susceptibility to climate-induced mortality is crucial for resilience management. Increased freeze-thaw cycles and drought events can cause fatal, water-blocking embolisms in trees. Understanding twig water uptake helps identify

traits that can be used to understand species-level differences in climatic tolerance. Previous research shows that the cortex acts as a capacitor, suggesting the presence of an additional hydraulic resistor between cortex and xylem - the position of the phloem in twigs. Thus, the phloem may provide the hydraulic resistance that limits water uptake, according to Ohm's law ($I = \Delta\Psi/R$). Five species (Abies alba, Larix decidua, Pinus cembra, P. mugo, P. sylvestris) were studied across 3-4 sites each. Each species had a few selected twigs used to determine rehydration kinetics, which integrate I (hydraulic flux, measured by mass gain) with $\Delta\Psi$ (water pressure potential change over time). This characterizes the rate and pathways of water movement during twig rehydration. The twig anatomy was visualized using fluorescent microscopy, creating images used to measure phloem thickness in ImageJ. The resulting measurements will be used to fit a Lasso model in R to predict whether this trait significantly influences water uptake. Since this is an ongoing project, data analysis is still underway. If phloem thickness is found to be a significant predictor, these findings would support the hypothesis that the phloem contributes to hydraulic resistance during twig rehydration. This would enhance understanding of mechanisms underlying embolism recovery, which could help predict how different species respond to drought and freeze-thaw stressors.

Sanchez, Star - Major: Pre-counseling psychology and Social Work, Our Lady of the Lake University
Mentor: Dr. Kathryn Anderson, Professor, Department of psychology
Title: Grieving the Loss of a Meaningful romantic Relationship: Ambiguous Loss, Attachment Styles, and Emotional Regulation
Abstract: The end of a romantic relationship can lead to grief and emotional distress. Although romantic breakups are common, the grief associated with relationship loss is often overlooked (Reimer & Estrada, 2021). This study examines the relationships among attachment styles, emotional regulation difficulties, and grief severity following romantic relationship loss. Understanding factors associated with breakup-related grief improves knowledge of how individuals cope with relationship loss and provides information useful for counseling and mental health services. Participantsinclude adults aged 18–62 years who have experienced the loss of a meaningful romantic relationship. Data were collected through an anonymous Qualtrics survey using the Attachment Style Questionnaire (Sperling & Berman, 1994), Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004), and theInventory of Complicated Grief–Revised (Boelen & Reijntjes, 2009). It is hypothesize that insecure attachment styles and emotional regulation difficulties will be associated with higher levels of grief. Data will be analyzed using SPSS to examine relationships among the study variables and determine whether attachment styles and emotional regulation difficulties predict grief severity. Positive relationships are expected among insecure attachment styles, emotional regulation difficulties, and grief severity. This study helps increase understanding of how attachment styles and emotional regulation relate to grief following romantic relationship loss. These findings could be applied to improve support for adolescents in schools who experience their first relationship loss. Future research should examine additional factors that may influence grief following romantic relationship loss.

Poster Presentation Abstracts Session #2

1:00 to 2:00 p.m. Thursday, September 10, 2026- Location: SUB Bottom Floor Atrium

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

Setser, Nathan - Major: Geology, Sul Ross State University
Mentor: Dr. Thomas Shiller, Professor, Department of Geology
Title: Application of Three-Dimensional Modelling on Cretaceous Vertebrate Fossil Bones from the Big Bend of Texas
Abstract:

Three-Dimensional Rendering in Paleontology is becoming a useful tool for documenting and cataloging fossil specimens. Using photogrammetry, fossils can be rendered into digital, 3-D models which preserve the basic morphology of the specimen and surface details. These models can be used traditional morphometric study and can also be shared digitally, reducing the need for physical transport or travel to study fossil bones.

Using Photogrammetry programs like 3D Zephyr, the collection of Cretaceous-age dinosaur fossils in the Sul Ross Geology Program can be processed and cataloged, effectively producing a virtual collection that can be shared and preserved digitally. Additionally, the current study seeks to utilize 3D models for biomechanical analyses on the structure, function, and motion of different Cretaceous vertebrates.

Siby, Aiseta - Major: psychology, Colorado State University
Mentor: Emily Merz, Associate Professor, Department of Psychology
Title: The Effects of Cultural Intergenerational Trauma on West African Woman
Abstract: West African women often navigate cultural expectations, family traditions, and displacement-related experiences that influence how trauma is transmitted across generations and how mental health is approached. Although intergenerational trauma has been studied in several populations, including African American women and families affected by systemic and racial oppression, there is limited research examining how intergenerational trauma affects the mental health of West African women living in the United States. This gap in the literature makes it difficult to develop culturally appropriate mental health interventions. This study aims to explore how traditional customs, gender expectations, and culture influence the transmission of trauma, the shaping of cultural identity, and mother-daughter relationships. This study draws parallels between two communities that have similar experiences with intergenerational trauma, racism, the African diaspora, and cultural and societal expectations. Participants will consist of approximately 15 West African women who currently reside in Colorado and are first-generation Americans between the ages of 18 and 35. Data collection will adhere to ethical guidelines, ensuring confidentiality, while thematic and narrative analysis will identify key patterns and themes. Results are anticipated to reveal the complex ways in which culturally enforced expectations, such as silently enduring hardships or living according to gender roles, serve as pillars of cultural identity while triggering psychological distress. Ultimately, this study will provide foundational insights necessary to develop culturally responsive clinical frameworks that move beyond Western psychological models to support not just West African women, but also Black/African women across Africa and America.

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Smith, Hannah - Major: Biology, Concord University
Mentor: Dr. Thomas Ford, Professor of Biology, Department of Biology
Title: Factors Driving Roundworm Spread in Animal Populations
Abstract: Roundworm infections remain a significant parasitic concern across domestic and livestock animal populations, with transmission influenced by environmental exposure, host behavior, and preventive care practices. This study evaluates how livestock, outdoor companion animals, indoor companion animals, and animals receiving antiparasitic medications affects roundworm prevalence and egg burden. Fresh fecal samples were collected from each group and analyzed using a standard fecal flotation technique. Samples were mixed with a high–specific gravity flotation solution, filtered through cheesecloth, and examined using a McMaster counting grid to quantify eggs per gram (EPG). Based on established parasitology patterns, results are expected to show meaningful differences in roundworm egg counts across management categories, with higher EPG values in animals with greater environmental exposure and lower values in animals receiving routine deworming. Anticipated findings will help clarify how lifestyle, access to contaminated environments, and medication history contribute to roundworm spread, which will support improved parasite prevention strategies and reducing zoonotic risk.

Trujillo, Vashti - Major: Criminology and Data Analytics, Colorado State University Pueblo
Mentor: N/A, N/A, N/A
Title: From Evidence to Implementation: A Systematic Review of Community-Based Interventions and Implementation Challenges for Justice-Involved Youth
Abstract: Justice-involved youth often face complex social, behavioral, and environmental challenges that contribute to continued system involvement. While a range of community-based interventions have been developed to reduce recidivism and support positive youth outcomes, this review focuses on three of the most widely studied approaches: diversion programs, mentoring, and restorative justice practices. This systematic review will synthesize peer-reviewed literature to compare reported outcomes across these three intervention types and identify the program characteristics, such as service intensity, family involvement, and community partnership structure, most consistently associated with program effectiveness. The review will also examine implementation factors reported alongside these outcomes, including program accessibility, participant engagement, and organizational capacity, to better understand not only whether these interventions work, but under what conditions they are successfully delivered. By identifying patterns and gaps across the existing literature, this project aims to inform future program development, evaluation, and policy discussions in juvenile justice reform. This review also serves as the foundation for future research exploring how evidence-based community interventions can be translated into practice through qualitative research and program evaluation.

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Title:

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