Arthur, Sharon - Major: Psychology, Texas Christian University  
Mentor: Dr. Sarah Hill, Professor, Department of Psychology  
Oral Presentation Session #1, Room: Acoma B  
**Title:** CONNECT 4: How Family Dynamics and Discrimination Weave into Self-Esteem and Occupational Performance Among Black and White Individuals  
**Abstract:** Existing literature highlights family dynamics and discrimination and its association to self-esteem and occupational performance among African American and Caucasian populations single handedly. However, this study considers how these factors are interconnected. Two quantitative cross-sectional design experiments were conducted through the survey-based software called Qualtrics. Experiment 1 involved a White population sample of 172 participants from the Texas Christian University SONA Psychology pool. Experiment 2 included a population sample of 178 Black participants from Amazon MTurk and existing data from Experiment 1. The mediation models in both experiments indicated that discrimination causes individuals to exhibit lower levels of self-esteem. Furthermore, self-esteem was positively related to greater occupational performance. Through changes in self-esteem, familial relationships are attributed to higher levels of self-esteem and occupational performance. These findings emphasize the important role of family relationships as a protective factor against adversity through discrimination and success in occupational performance as self-esteem changes.

Baltazar, Maria - Major: Political Science, St. Edward's University  
Mentor: Dr. Brian Smith, Professor of Political Science, School of Behavioral and Social Sciences  
Oral Presentation Session #1, Room: Fiesta A  
**Title:** Affordable Housing and Failing Housing Models: Implications of Opportunity  
**Abstract:** Assisted housing programs in the United States aim to provide decent, safe, and affordable housing for low-income households. The United States Department of Housing and Urban Development (HUD) currently employs two strategies to achieve these goals. First, place-based programs involve fixed subsidies tied to specific housing units, aiming to revitalize distressed neighborhoods while offering access to higher-opportunity areas. Second, people-based assistance, such as housing vouchers, enables recipients to rent housing in the private market, thereby facilitating moves from high-poverty, low-opportunity neighborhoods. Given the current national focus on housing priorities, it is crucial to understand the effectiveness of each approach. This research will synthesize existing scholarly work on housing vouchers, zoning, land regulations, preservation of affordable housing, integration, opportunity, and Public-Private Partnerships (PPPs). It reviews the limited literature available on the implications of opportunity to affordable housing recipients and current housing models. The findings of this research help propose a new policy initiative focused on an adaptive reuse and mixed-use-development.

Delgado, Alexa Aaliyah - Major: Biology, Our Lady of the Lake University  
Mentor: Dr. Briana Salas, Associate Professor, Department of Biology  
Oral Presentation Session #1, Room: Lobo A  
**Title:** Microbiologically Induced Corrosion of Marine Vessels and Structures
Abstract: Copper-nickel (CuNi) alloys are widely used in marine infrastructures such as heat exchangers and piping systems in submarines and ships. However, these structures continue to corrode due to several abiotic and biotic factors, resulting in economic loss and valuable resources. Researchers have identified evidence of Microbiologically Induced Corrosion (MIC) as one of the major factors for the corrosion of CuNi alloys. Therefore, this research project aims to identify the microflora (culture-based) grown on CuNi and Titanium (control) coupons, which are incubated in seawater-based microcosm tanks. The metal coupons will be incubated for 16-20 weeks in stagnant and flow conditions and coupons will be collected at biweekly intervals for the analysis. The thin biofilm layer formed on the coupons will be swabbed on the selective media for culturing bacterial and fungal species. The bacterial and fungal DNA extracted from individual cultures will be used for molecular identification of microflora (PCR amplification of 16S rRNA for bacteria and internal transcribing region for fungi, followed by Sanger sequencing and bioinformatic analysis) responsible for MIC. Finally, the difference in the microflora in stagnant and flow conditions along the metal loss on coupons will be analyzed, which will enable us to impact the effect of differential microflora on the MIC of CuNi alloys.

Edow, Ifrah - Major: Biology, Augsburg University  
Mentor: Dr. Matthew Beckman, Department Chair, Associate Professor, Department of Biology  
Oral Presentation Session #1, Room: Acoma A  
Title: The Effect of a Novel Drug on the Swimming Behavior of Daphnia magna Treated with Manganese  
Abstract: Daphnia magna are freshwater microcrustaceans used for toxicological and water quality studies. The detailed study of the organism’s motor and swimming behavior makes it a valuable specimen to study neurochemical effects. Daphnia locomotion was observed after treatment with Manganese (II) Chloride. Following prolonged exposure, manganese can result in a neurological condition called manganism in humans. This condition causes movement and cognitive deficits like Parkinson’s disease. Building upon previous research, Daphnia were rescued from post-manganese toxicity using P7C3-A20. P7C3-A20 is a pronuerogetic molecule discovered to promote neurogenesis by preventing premature neuronal cell death. Daphnia were treated with manganese concentrations between 0.0-100 mg/L. At 24 hours, the animals were imaged and then treated with P7C3-A20. Locomotion was also imaged at 48 and 72 hours after manganese treatment. Our working hypothesis is that P7C3-A20 treatment after manganese exposure will improve Daphnia’s motor behavior compared to Daphnia that were treated with manganese alone.

Fuentes, Vanessa - Major: Criminal Justice, California State University Sacramento  
Mentor: Dr. Danielle Slakoff, Assistant Professor, Criminal Justice  
Oral Presentation Session #1, Room: Santa Ana B  
Title: The Portrayal of Domestic Violence in the Hit Show, Maid  
Abstract: Prior analyses show that physical abuse is most often portrayed in the media when intimate partner violence (IPV) is present. To date, no researcher has examined
the portrayal of IPV in the hit Netflix show, Maid. Using directed qualitative content analysis, the researcher examined the show for differing types of IPV and barriers to help-seeking. Analyses show that emotional abuse and financial barriers were commonly portrayed within the show. These findings indicate that the Netflix series may perform better than other media in showcasing the reality of IPV.

**Garcia, Katelyn** - Major: Biochemistry, Iona University
Mentor: Dr. Rodney Versace and Dr. Sunghee Lee, Dr. Versace: Assistant Professor
Dr. Sunghee Lee: Board of Trustees Endowed Professor, Chemistry and Biochemistry Department
Oral Presentation Session #1, Room: Luminaria
**Title:** *Energetical Calculations of the Cation Effect in DOPC bilayers*
**Abstract:** Lipids, an essential component for plasma membranes, play a vital role in providing structure and protection for biological cells. Monovalent (K+, Na+) and divalent metal cations (Ca2+, Mg2+) are significantly important in maintaining homeostasis for organisms. This study investigated the interaction of monovalent and divalent cations with DOPC (1,2-dioleoyl-sn-glycero-3-phosphocholine) lipids. DOPC membranes have been created with various cations (Na+, K+, Mg+2, Ca2+, and Na+) at two different concentrations (0.1 M and 0.5 M). Molecular dynamic simulations and the ABF (Adaptive Biasing Force) algorithm were utilized to calculate the energy required to force a water molecule to cross the membrane in the presence of various cations. Our results will provide important information related with the changes in physical properties of the membranes, such as water permeability.

**Hatch, Nizhoni** - Major: Biomedical Sciences, Colorado State University
Mentor: Dr. Kathleen Rodgers, Associate Director, University of Arizona
Oral Presentation Session #1, Room: Isleta
**Title:** *Identifying Plasma Biomarkers for ALS Utilizing Human and SOD1-G93A Mouse Model*
**Abstract:** Amyotrophic lateral sclerosis (ALS) is a progressive neurodegenerative disease that leads to the death of motor neurons. This study aimed to identify blood-based ALS biomarkers and their representative biological pathways by analyzing the significant plasma protein changes in a SOD1G93A mouse model compared to human ALS patients. A comprehensive proteomic analysis was conducted at three timepoints across a healthy control and an untreated SOD1G93A group. The animal protein profiles were associated with human ALS samples in a parallel study. Thirty-one significant proteins were identified in mice and 401 in the human data, with seven proteins shared in both datasets. The related biological pathways involved extracellular matrix organization and laminin interactions. This research addresses the critical need for biomarker-based diagnostic and prognostic ALS tests.

**Llanes, Adrian** - Major: Sociology, Grand Valley State University
Mentor: Dr. Jeffrey Rothstein, Department chair, Professor, Department of Sociology
Oral Presentation Session #1, Room: Fiesta B
**Title:** *TikTok: The Labor Movement's Secret Weapon?*
Abstract: TikTok has quickly become one of the largest platforms in the U.S., amassing 150 million users since its creation in 2016. The platform’s vast user base has drawn the attention of various interest groups, including labor unions seeking innovative ways to engage with workers. This paper employs a mixed-methods approach to evaluate the effectiveness of TikTok as a tool for worker engagement. Key performance indicators from three accounts (teamsterslocal294, sbworkersunited, moreperfectunion) such as follower count, likes, and views were recorded and compared to other platforms such as Instagram and Facebook. Content themes and audience responses were also recorded. Preliminary findings suggest that TikTok presents an opportunity for organized labor to connect with workers on larger scales and receive overwhelmingly positive support. This has implications for labor unions across the country, showing that TikTok will be crucial in the advancement of workers’ rights and union drives in the digital age.

Martinez, Isabela - Major: Psychology, University of New Mexico
Mentor: Dr. Kent Kiehl, Professor, Department of Psychology
Oral Presentation Session #1, Room: Santa Ana A

Title: Variants of Psychopathy in Relation to Anxiety
Abstract: Psychopathy is a disorder often associated with a lack of care for others; however, there is more to the condition. Four factors are currently associated with psychopathy: interpersonal, affective, lifestyle, and antisocial. The recent literature on this topic strives to understand the unique experiences one may have, primarily with anxiety. This research attempts to better understand the question, “How do the variants of psychopathy influence how a person experiences anxiety?” I am utilizing the archival data from the Kiehl Lab at the University of New Mexico's Mind Research Network. I will analyze the results from three rating scales completed by participants from an incarcerated population. The rating scales include the Psychopathy Checklist-Revised (PCL-R), Structured Clinical Interview for the DSM (SCID), and State Anxiety Interview (STAI). Through statistical analysis and modeling, I strive to identify a connection to how anxiety levels differ with one’s variant of psychopathy. Also, by comparing the results from the interviewer measures scored through the SCID and the self-report measured through the STAI, I will be able to analyze how the rating scale results concur or differ. Results could inform the field of forensic psychology on the experiences of those with psychopathy.

Carrizales, Kimberley - Major: Dual degree: Pre- Counseling & Social Work, Our Lady of the Lake University
Mentor: Dr. Jacqueline Coppock, PsyD, LP- Head of the wellness center, Psychology Department
Oral Presentation Session #2, Room: Santa Ana A

Title: How Do Cultural Norms and Family Expectations Impact Perspectives about Pursuing Higher Education for First Generation Latinx College Students?
Abstract: This study will explore how first-generation Latinx college students’ cultural norms and family expectations faced impact their educational journey throughout higher education. Upmuth (2012) cited challenges that Latinx college students experience when attempting to reach their educational goals, including such difficulties as
immigration status, poverty, discrimination, low self-esteem, higher rates of depression and attempted suicide, gender stereotypes, and limited English proficiency. Traditions, along with family expectations continue to be highly regarded within the Latinx culture; there continues to be the expectation that first-generation Latinx college students uphold these norms and values throughout their higher educational careers (Gardner et al., 2011). By highlighting the unique experiences of first-generation Latinx students, I am hoping this research will help inform university programs and retention efforts aimed at this population.

**Cook, Jaxon** - Major: Neuroscience, University of Colorado Boulder  
Mentor: Dr. Kenneth P. Wright, Professor of Distinction, Director of Sleep and Chronobiology Lab, Department of Integrative Physiology  
Oral Presentation Session #2, Room: Isleta  
Title: *Comparison of the effects of sleep inertia, homeostatic sleep drive, and circadian phase on time-on-task decrements in vigilance performance*  
Abstract: Much research has been done on the effects of time-on-task, circadian phase, sleep homeostatic drive and sleep inertia on vigilance performance; but little is known about how these processes interact and their influence on measured vigilance performance. To develop a clearer understanding of these possible interactions 6 healthy adults (1 female) underwent a 28h forced desynchrony (FD) protocol where a 20min Psychomotor Vigilance Test (PVT) was administered at awakening and every 2h until scheduled sleep. The reciprocal mean reaction time and lapses in attention (>500msec) were organized in 2min bins for time-on-task, 60° circadian bins for circadian phase, and 2h hours awake bins for time awake. Significant effects of circadian phase and hours awake on the time-on-task were observed yet there was no time-on-task effect during sleep inertia. These findings can help inform decisions about timing when developing interventions for shift workers and populations operating at night and sustained operations.

**Harvey, Ariana** - Major: Psychology, University of North Georgia  
Mentor: Dr. Shelley Aikman, Professor, Department of Psychological Science  
Oral Presentation Session #2, Room: Santa Ana B  
Title: *Can Mindful Self-Compassion Lessen the Impact of Social Media on Mental Health?*  
Abstract: Social media use is ever increasing, and debates continue as to whether that leads to more harm than good. During the pandemic in particular, social media was a means of connection, but it was also a means of doom scrolling and a source of misinformation, perhaps heightening stress and anxiety. It is important to examine factors that might provide a protective function against the negative effects, allowing users to engage with social media in a less harmful way. In this study, we examine the role of self-compassion and mindfulness in the relationship between social media use and mental health. This could inform the development of interventions targeting aspects of self-compassion and mindfulness that are most related to social media use and mental health.
Oral Presentation Abstracts Listed by Session #
Thursday, September 7, 2023
Location: SUB Top Floor Rooms

Hopper, Dhajia - Major: Wildlife Biology, Colorado State University
Mentor: George Wittemyer, Professor, Department of Fish, Wildlife, and Conservation Biology
Oral Presentation Session #2, Room: Acoma A
Title: Using Fire to Prevent Disease Spread
Abstract: Climate change is disrupting our planet in many ways. One is through wildfire, as climate change has intensified, it has increased the severity and occurrence of wildfires. Climate change has also increased the spread of invasive species and disease. One disease of particular concern is Chronic Wasting Disease. Prion diseases are caused by a misfolded prion protein and are always fatal. There is concern for the potential of the disease to spillover to humans. Current research is being conducted on the role of scavengers in sequestering prions from the environment following the consumption of infected carcasses. Future research should explore how prescribed burns may be used as a tool in mitigating the spread of the disease and decreasing contact with affected species.

Hosep, Marie - Major: Psychology, Grand Valley State University
Mentor: Dr. Naomi Aldrich, Associate Professor, Department of Psychology
Oral Presentation Session #2, Room: Acoma B
Title: Examining Relationships between Self-Injury and Body Modification Behaviors
Abstract: Although some individuals may engage in body modification behaviors (e.g., tattooing, body piercing) as an outlet for self injurious tendencies, the DSM-5 excludes certain socially sanctioned behaviors from the diagnostic criteria. Within the last decade, research concerning NSSI and body modification has increased. Thus, the current investigation seeks to bring together this literature through meta-analysis. Most studies were identified through periodic computerized searches of five databases using a fixed series of combinations of key terms. After records were examined, 7 studies remained for inclusion. A small but significant relationship was found between NSSI and body modification behaviors, with the strongest relationships being found within mental healthcare settings and among severe body modification samples.

Lambert, Ryland - Major: Anthropology and History, Eastern Michigan University
Mentor: Dr. Megan Moore, Professor, Department of Sociology, Anthropology, and Criminology
Oral Presentation Session #2, Room: Fiesta A
Title: Hormone Replacement Therapy and the Clavicle
Abstract: One of the many topics that are under-researched in transgender medicine includes the effects of hormone therapy on individuals who are still physically developing. Due to the importance that estrogen and testosterone have on bone health, research into the impact of hormone therapy on the development of the skeleton in transgender individuals is crucial to the forensic anthropologist to further expand the data pertaining to human variation that is applied to the identification of unknown decedents. The clavicle in particular is an excellent tool for estimating an individual’s age at death, stature, and sex assigned at birth because it continues to grow at a
consistent rate until epiphyseal fusion occurs in the late twenties. Due to the clavicle not fusing for such a long period of time, there is the potential for significant bone remodeling and growth far past the typical age of puberty (Hughes et al. 2020). Because of this, it can be hypothesized that the introduction of cross-sex hormones before the age of medial epiphyseal clavicular fusion may potentially influence the growth patterns of the clavicle to align more closely with the gender one is transitioning to.

**Moran, Mason** - Major: Mathematics, Michigan Technological University
Mentor: Robert Schneider, Assistant Professor, Department of Mathematics
Oral Presentation Session #2, Room: Lobo A
**Title:** Knot-Theoretic Analysis of Sona Diagrams from African Art
**Abstract:** Originating in Central Africa are diagrammatic designs known as lusona (plural, sona) which are geometric arrays of dots enclosed in loops. These sona are used by pioneers as deep cultural significance in passing stories from generation to generation. Unfortunately, due to history many of these pioneers have passed away, and the art of sona is near extinct. Similarly, Kolam is a cultural art expression in South India that uses rice grains and is inscribed deep in Indian culture.

Our research group’s umbrella goal is to explicitly motivate and prove the connections between sona and knot theory and partitions, which in turn unveils connections to number theory and combinatorics. This paper collects the ongoing, original work in knot theory and makes an attempt to further this novel research topic belonging to Robert Schneider and his previous mentee, Alex Harp. While Harp focused more on partitions, I not only emphasized the knot-theoretic applications but also, according to Schneider, proved some of the conjectures and made them theorems with official proofs using knot theory. Giving us a possible lead, we may have progress on the manifest of the underlying mathematics of sona and its connections on paper.

**Olivarez, Lizbeth** - Major: Population Health, University of New Mexico
Mentor: Dr. Tammy Thomas, Assistant Professor and Director of Undergraduate Programs, UNM College of Population Health
Oral Presentation Session #2, Room: Fiesta B
**Title:** Improving Digital Health Literacy with Community-Based Interventions in Rural New Mexico
**Abstract:** Digital health literacy encompasses the ability to seek, find, understand and appraise health information from electronic sources to apply the knowledge gained to address and solve a health problem. Health literacy focuses on the structural barriers that impact health outcomes. Rural populations experience minimal digital infrastructure and longstanding health inequities that contribute to limited health literacy levels. This includes inadequate broadband access and geographic constraints, immediately affecting a person's ability to find, understand, and evaluate online health information, resources, and telehealth services. This presentation will describe the health promotion program planning for designing community-based health literacy interventions aimed to improve digital health information access and empower rural residents to make well-
informed health decisions. This health promotion program will utilize the Empowerment Model to promote preventative health behaviors and improve digital health literacy among rural communities. It will incorporate a train-the-trainer education model to place trusted local residents at the forefront of planning and implementing the health promotion program. Results will inform community-specific health communication strategies to equitably disseminate health information while building health autonomy among rural populations.

**Skejovic, Senad** - Major: Chemistry, Iona University
Mentor: Dr. Kathleen Kristian, Associate Professor, Chemistry
Oral Presentation Session #2, Room: Luminaria
**Title:** *Investigation of the Reaction of a Water-Soluble N-Heterocyclic Carbene Rhodium Complex with HNO2*
**Abstract:** The reactions of metals with NOx species are important to study because they can be helpful in understanding pollutants that are damaging the ozone layer, present atmospheric hazards, and enzymatic reactions in biological systems. A water-soluble N-heterocyclic carbene rhodium complex, LEtRh(COD)Cl (LEt = 1-ethyl-3-(propyl-3-sulfonate)benzimidazolin-2-ylidene), was prepared and its reaction with aqueous HNO2 at pH 1 was studied. N-heterocyclic carbene ligands (NHCs) are capable of forming strong bond with d-block metals and are oxidation resistant, providing a stable metal complex for the study of reactions with NOx oxidants. The reaction produces an intermediate with absorbance maxima at 415 and 610 nm, which decays over minutes. In order to determine the stoichiometry of the reaction and characterize the rhodium product(s), spectrophotometric and electrochemical methods to analyze product nitrate ions were investigated. Results of the nitrate analysis will be discussed.

**Barrios, Aaron** - Major: Physics, University of Colorado Boulder
Mentor: Dr. Jason Dexter, Assistant Professor, Department of Astrophysics and Planetary Sciences
Oral Presentation Session #3, Room: Luminaria
**Title:** *Sources of Anisotropic Emission from our Galaxy’s Supermassive Black Hole*
**Abstract:** The enormous gravitational pull of a black hole shrouds it in secrecy. Even light cannot escape its grasp; thus, probing deeper requires an indirect look. Observing radiation from its accretion disk—a ring of gas orbiting the black hole—can help pierce its veil. However, the disk does not radiate the same amount of light in every direction (anisotropic). Since black hole observations are made from fixed directions, knowing how anisotropy affects the entire spectrum is essential. Although we know the main contributors are general relativity and matter-radiation interactions, how they work together to promote anisotropy is unclear. Using a code to calculate null geodesics around curved spacetime (Yang & Wang, 2013), we present initial results for how anisotropic emissions may arise in accretion disks around black holes.

**Betters, Trent** - Major: Computer Science, Michigan Technological University
Mentor: Dr. Briana Bettin, Assistant Professor, Computer Science &
Assistant Professor, Cognitive and Learning Sciences, Computer Science  
Oral Presentation Session #3, Room: Lobo A  
**Title:** Equitable CS Education  
**Abstract:** Assistant Professor, Computer Science  
Assistant Professor, Cognitive and Learning Sciences  

**Carrasquillo, Kaylynn** - Major: Criminal Justice and Psychology, Iona University  
Mentor: Dr. Christine Hardigree, Associate Professor, Assistant Chair, Education Department  
Oral Presentation Session #3, Room: Fiesta B  
**Title:** America’s Youth Deserves Justice: Has juvenile incarceration increased in Republican versus Democratic States?  
**Abstract:** The School-to-Prison-Pipeline (STPP) is the phenomenon in which youth are incarcerated in part due to policies enacted in schools, such as zero-tolerance policies and increased police presence. The purpose of this research project is to compare how Republican and Democratic state policies exacerbate and impact the scale of the STPP. To do this, statistics of youth incarceration in Florida and New York are compared. Statistical data about youth incarceration rates were collected from the American Civil Liberties Union (ACLU) and the Project on Accountable Justice, a think tank collaboration between universities in Florida. Preliminary findings show that youth incarceration rates in New York have decreased since the 1990’s when the state implemented solutions for combatting the STPP. In contrast, rates in Florida vary, while overall youth crime has been decreasing, violent crimes have been increasing. Issues to be explored include what policies have been put in place between Republican vs Democratic majority states and to analyze specific policies states have implemented to combat the STPP. Implications of these findings include whether these trends extend to other states along political lines. This raises questions about whether the children of America are safe in schools or not.

**Guadián, Daisy** - Major: Biology, University of New Mexico  
Mentor: Dr. Len Kravitz, Professor and Program Coordinator of Exercise Science, College of Education and Health Sciences  
Oral Presentation Session #3, Room: Isleta  
**Title:** Effects of Strength Training on Osteoporosis  
**Abstract:** Osteoporosis is a chronic disease primarily associated with aging, and commonly associated with genetics, mechanical factors, and hormonal factors. Many older populations, particularly those with frailty, are likely to have osteoporosis, further increasing their risk of disease-related complications. Exercise training has been recommended as a promising, low-cost, and safe, nonpharmacological intervention strategy for the conservation of musculoskeletal health. To stimulate the osteogenic effects for bone mass accretion, bone tissues must be exposed to mechanical load exceeding those experienced during daily living activities. Although specific mechanisms by which exercise enhances bone health are not fully elucidated yet, it is widely agreed in the peer-reviewed literature that mechanical load induced by exercise training increases the targeted muscle and bone mass. Results show that mechanical
stress of the skeleton enhances bone growth and development. Individualized resistance exercise programs are known to be highly beneficial for osteoporosis prevention, which should consider a person's age, frailty, family history of osteoporosis, history of fractures and falls, presence of disease(s), hormone levels, drug or alcohol use, diet, and daily physical activity.

Reyes, Kimberly - Major: Anthropology/Sociology, Knox College
Mentor: Dr. Jonah S. Rubin, Assistant Professor of Anthropology, Department of Anthropology and Sociology
Oral Presentation Session #3, Room: Fiesta A
Title: Instagram, the True Patriot: How NGOs in Border Communities Produce Media to Advocate Humanitarian Issues
Abstract: As mainstream media continues to transition into the social media sphere, NGOs along the U.S.-Mexico border, strategies on how to better communicate and connect with the public are necessary to continue staying afloat and garnering attention in the online community. This study addresses how the organizations Voces Unidas, Border Network for Human Rights, and RAICES use different forms of aesthetics - photography, videography, artwork, etc. - in their Instagram posts to raise awareness and fight for immigration rights, policy changes, and inhuman acts by officials in their communities. After conducting a media analysis and semi-structured interviews, I will discuss how the usage of symbolic imagery that is within the community and use of language is able to direct multiple audiences.

Rose, Ciersten - Major: Chemistry, Concord University
Mentor: Dr. Rodney Tigaa, Assistant Professor of Chemistry, Chemistry
Oral Presentation Session #3, Room: Acoma A
Title: Using Microwaves to Accelerate the Preparation of Rare Earth Materials for Security Inks
Abstract: Rare earths such as the lanthanide ions, Ln(III), continue to receive much attention due to their unique properties for modern technological applications. This has resulted in lanthanides being classified as critical materials which have geopolitical and economic implications. Thus, there remains a need to investigate the chemistry of these elements. The goal of the proposed work was to synthesize and characterize polybenzimidazole derivatives to selectively coordinate Ln(III) ions and tune their optical properties for security inks. Through this work, we successfully developed a new microwave method for preparing tris-(2-benzimidazolylmethyl)amine (BimH3) and triethyl 2,2',2''(2,2',2''nitrilotris(methylene)tris(1Hbenzimidazole-2,1-diyl)) triethanoate (BimOEt3). Analysis of the obtained samples by a combination of structural and optical methods indicated successful synthesis of the BimH3 (30% yield), BimOEt3 (86% yield) ligands, and coordination with Ln3+ ions. These coordination compounds were utilized to make security inks which glow under certain light frequencies. The photophysical studies, such as emission quantum yields of the prepared complexes, as well as ongoing work to improve these properties will be discussed.

Salas, Nicholas - Major: Education, Our Lady of the Lake University
Mentor: Dr. Jessica Quintero, Assistant Professor Dr. Juarez, Department of Education
Oral Presentation Session #3, Room: Santa Ana B

Title: Unfettered/Unsupervised internet access by minors and the connection to mass tragedy

Abstract: This research is a look into the factor of minor children ages 3-18 who may have had unfettered/unsupervised Internet access which could impact and desensitize them to both inability to form connections and healthy relationships and to be desensitized to violence. The questions posed in the research include whether minor children’s exposure(s) to witnessing acts of violence, war, fatal accidents, pornography, killings, death, or sexually explicit content created a negative, potentially harmful outlook on life, relationships and people in general. The research involves a survey to be submitted to undergraduate and graduate students at Our Lady of the Lake University in San Antonio, to determine a random sampling of their responses to questions concerning Internet access to websites that entail viewing of graphic content related to violence, fatalities and pornography and/or acts of a sexual nature. The survey also inquires of participants as to whether as minors they reached out to a parent or other adult to discuss the disturbing content and receive some guidance and support for what they had viewed or been shown to them which may have caused them trauma, hurt, or disturbance.

Sandoval Mendoza, Ingrid - Major: Nutrition & Dietetics; Spanish for Health Professions, Idaho State University
Mentor: Jenifer Reader, Clinical Associate Professor, Department of Nutrition and Dietetics
Oral Presentation Session #3, Room: Lobo B

Title: Barriers and Facilitators in Eating Disorders Among Latina Women

Abstract: Eating disorders (ED: singular; EDs: plural) have been well studied and affect all individuals diagnosed with them, regardless of age, sex, or ethnicity. Negative effects of EDs include a preoccupation towards food, calories, and weight loss. There are many factors that influence the development of EDs, including internal or external challenges or solutions that either hinder or encourage the development of an ED. Those factors that hinder an individual’s understanding or path to living a normal lifestyle are barriers, progressing to a more severe diagnosis of an ED over time. Factors aiding in an individual’s ED diagnosis in reducing further progression of symptoms are known as facilitators. All individuals diagnosed with EDs have both barriers and facilitators that influence ED development; however, some of these have more of an impact within specific populations. One specific population includes the Latino ethnic group; specifically, Latina women. Some barriers and facilitators impact or aid Latinas throughout their diagnosis and progress with EDs more significantly than the general population. These factors include Acculturative Eustress, Acculturative Stress, Body Appreciation, Body Dissatisfaction, Cultural Food, and Religious Beliefs. This literature will go over these barriers and facilitators impacting Latina women throughout their diagnosis and progress with EDs.

Villalobos, Andrew - Major: Psychology, New Mexico State University
Mentor: Dr. Andrew Conway, Professor & Department Head, Department of Psychology
Oral Presentation Session #3, Room: Santa Ana A

**Title:** The Association between Socioeconomic Status and Other Environmental Factors on Executive Functioning Performance

**Abstract:** Executive functioning refers to a set of cognitive processes & mental skills that help individuals manage & regulate their thoughts, actions, & behaviors to achieve goals & navigate daily life tasks effectively. These processes are essential for planning, organizing, initiating tasks, managing time, making decisions, problem-solving, controlling impulses, & adapting to new or changing situations. Prior research has shown that lower-income students tend to score lower on executive functioning tasks. However, much of the current research lacks large & diverse samples. This study is a secondary data analysis that is using the Adolescent Brain Cognitive Development study (ABCD). The ABCD study is the largest longitudinal study of brain development & child health in the United States. The ABCD study is following a cohort of over 10,000 children from pre-adolescence into adulthood. The ABCD study provides a unique opportunity to analyze individual differences in executive functioning on a large scale. This analysis aims to investigate the association between socioeconomic status & other environmental factors on executive function performance. This analysis is still underway, however, so far results show that low-income students tend to have executive functioning deficiencies in multiple areas.

Walker, KJ - Major: Family & Child Studies, University of New Mexico
Mentor: Dr Ashley-Martin-Cuellar, Lecturer III, Department of Individual, Family, and Community Education
Oral Presentation Session #3, Room: Acoma B

**Title:** Resiliency: “Continuing to survive, live and breathe” A retrospective Phenomenological Study on transgender adolescents

**Abstract:** This study aims to examine the connection of resiliency, coping skills and resources used by transgender individuals through a strengths-based and holistic perspective. Using Interpretive Phenomenological Analysis, this study explores the experiences of adult trans individuals reflecting on their adolescent experiences through surveys and interviews. By exploring these retrospective accounts, this study contributes to the limited body of research on resilience within transgender lifespan development. Semi-structured interviews, lasting approximately 60 minutes, were conducted with four participants. The data analysis revealed four major themes: 1) Embodiment of Gender, 2) Queering Radical Acceptance, 3) Coping: "15 Minutes of Escape," and 4) Overall Mental Health. These findings provide valuable insights into the coping mechanisms and strengths of trans individuals, shedding light on their resilience and informing future support and intervention strategies.

Frade, Francisco - Major: Computer Information Systems and Security, Our Lady of the Lake University
Mentor: Dr. Vanessa Clark, Chair, Associate Professor, Computer Information Systems and Security
Oral Presentation Session #4, Room: Lobo A
Oral Presentation Abstracts Listed by Session #
Thursday, September 7, 2023
Location: SUB Top Floor Rooms

Title: Understanding the psychological impacts of employees after cyber attacks
Abstract: Cyber-attacks happen on a daily basis every second globally towards businesses. Threat actors intentionally attack this business in order to have financial gain or gather information for a much larger target. During these attacks internal user mistakes are normally the root cause for any attack occurring. This research investigates the emotional and behavioral impacts employees have after a cyber-attack. The data collected are from literature material such as a dissertation, blogs, case studies, and academic journals, using a meta-analysis approach with qualitative analysis. In the greater body of psychology and cybersecurity research, the lack of research focused in this area has a knowledge gap unknown to the field because of limited information publicly available. Most research provided approaches about what cyber-attacks can do, or the damage it can cause. However, none presents useful information for future research studies about developing human element response plans. The result of this study aims to convey needed response plans for employee’s, also known as end-users because there are few to none. Currently there are no results or findings yet for this interest. All information that’s gathered from the literature is planned to be used as evidence for this research results/findings.

Gonzalez, Makena - Major: Behavioral Neuroscience, St. Edward's University
Mentor: Dr. Jessica Boyette-Davis, Associate Professor, Psychology & Behavioral Neuroscience
Oral Presentation Session #4, Room: Fiesta B
Title: Learning to Belong Again: University belongingness in a post-pandemic society
Abstract: Belongingness refers to a feeling of connectedness and acceptance. At a university, feeling a sense of belonging can influence a student's attitude about their university and their experiences while enrolled and is implicated in several factors related to student success. Many factors can influence university belongingness such as peer and faculty interactions. These factors were disrupted during the height of the COVID-19 pandemic when classes abruptly went to an online format, which was shown to negatively influence belongingness. This current study aimed to understand how the return to in-person classes from online/remote classes has impacted belonging. Using the College Belongingness Questionnaire and the Expectancy-Value-Cost Survey of Student Motivation, students were asked to reflect on their experiences during the period of remote learning (2020-2021 academic year) and the year during which all in-person classes resumed (2021-2022). Using paired sample t-tests, belongingness and motivation significantly increased in the 2021-2022 school year from the year prior; however, none of the captured demographic variables were able to explain this increase (e.g., age, gender, living situation, university size, etc.). These results suggest that in-person classes are beneficial to student success, but more work is needed to identify the factors that mediate this relationship.

Gonzalez, Julia - Major: Psychology, New Mexico State University
Mentor: Dr. Megan Papesh, Professor, Department of Psychology
Oral Presentation Session #4, Room: Acoma B
Title: Two Kinds of Memory Signals in Neurons of the Human Hippocampus
Abstract: When you remember a specific memory, what can you recall about it? Maybe you are able to identify whether the memory is new (has barely happened) or old (has already happened). You might also remember specific details like colors involved, what the environment looked like, what it smelled like, the people that were there, etc.Generic memories are responsible for identifying if something was previously experienced (old) or if you are experiencing something for the first time (new). Item specific memory signals recall specific details of that memory. In this article, we focus on two types of brain activity that help foster and make all of these memories possible! Researchers discovered these signals by recording brain activity from patients as they completed a computer-based memory test. When recording brain activity, results indicated that the generic memory signal was derivative, while the item specific memory signal was fundamental for the formation of episodic memories. That being said, generic memory signals come from different parts of the brain, like the following brain regions studied (Amygdala, Hippocampus, Anterior Cingulate Cortex, and Prefrontal Cortex). While item specific memory signals are only found in the hippocampus and are essential and necessary for the formation of long-term memories.

Lane, Kelli - Major: International Studies and History, Colorado State University
Mentor: Dr. Jared Orsi, Professor, Department of History
Oral Presentation Session #4, Room: Santa Ana B
Title: "From Promises to Realities: Unraveling the History of Tourism in Mexico and the Disparity Between Government Rhetoric and Employee Experiences"
Abstract: Throughout history and in modern times, the government rhetoric surrounding the tourism industry in Mexico often contrasts starkly with the actual experiences of employees. While the government highlights the sector's potential for job creation and economic growth, workers frequently encounter lower wages, precarious employment conditions, and limited access to labor protections. Historical policies have sometimes prioritized attracting foreign investment and catering to mass tourism, leading to a reliance on low-cost labor that undermines the promises of economic prosperity for the local workforce. Despite the sector's significance to the national economy, labor issues, such as informal employment arrangements and inadequate wages, persist, reflecting a disparity between government narratives and the challenging reality faced by employees in Mexico's tourism industry.

McFarlane, Austin - Major: Scientific and Technical Communications, Michigan Technological University
Mentor: Dr. Shan Zhou, Assistant Professor, Department of Social Sciences
Oral Presentation Session #4, Room: Fiesta A
Title: California's Energy Policies: Unraveling the Institutional Grammar
Abstract: California is one of the nation's leaders when it comes to the implementation and development of renewable energy programs. California also has some of the most fleshed out policies when it comes to the renewable energy policies in the United States. Using the Institutional Grammar Tool, our main goal in this research was going over these policies and doing an institutional analysis on these policies and seeing how
they impact low-income homeowners and other actors involved with solar policies in the state.

Meurer-Zeman, Bianca - Major: Neuroscience, University of Colorado Boulder
Mentor: Dr. Lauren Hartstein, Research, Department of Physiology
Oral Presentation Session #4, Room: Isleta

Title: **Light Sensitivity in Children and their Circadian Rhythm**
Abstract: Melatonin is the main hormone responsible for sleep. When light is present, melatonin production is suppressed, largely contributing to our wake and sleep schedule. Data suggests that school-aged children are 2x more sensitive to light than adults, due to having larger and clearer lenses, which may influence their melatonin rhythms and disrupt their sleep patterns. We investigated the sensitivity of the circadian system to varying intensities and spectra (blue-enriched and red-enriched) of evening and morning light exposures in preschool-aged children (3-5.9 years). The protocol involved a strict seven-day wake/sleep schedule, followed by a three-day in-home assessment in a dimly lit environment (under 10 lux). Subsequently, participants provided saliva samples before, during, and after a 1h light exposure, anchored to their bedtime or wake time, to measure salivary melatonin levels. Our results will provide critical data for understanding the influence of the lighting environment on circadian rhythm development and sleep timing discrepancies. This NIH-supported research will fill gaps in the literature regarding sleep and light exposures in young children. Additionally, it will provide relevant data for designing sleep intervention programs to promote good sleep hygiene, including bedtime resistance, during early childhood development.

Olaguir, Eric - Major: Mechanical Engineering, University of New Mexico
Mentor: Dr. Fernando Moreu, Associate Professor, Department of Civil, Construction and Environmental Engineering
Oral Presentation Session #4, Room: Luminaria

Title: **Augmented Reality (AR) Enabling Human-Robotic Interfaces for Enhanced Field Inspections: Field Implementation**
Abstract: The goal of this study is to use Structural Health Monitoring (SHM) techniques to prioritize preservation actions. This study describes a nondestructive acoustic monitoring SHM technique called tap testing for identifying indicators of surface degradation. The system is built on Brutus, a portable unmanned robot. This study uses augmented reality (AR) techniques to enhance the deployment of Brutus and decrease risk factors while testing. For wireless control of driving, steering, and tap testing actuation with distance sensor feedback to completely notify the user, an AR control interface is created. The major objective of the body of work was to develop a mixed reality interface for the Microsoft HoloLens 2 (HL2), which would make it easier for humans and robots to work cooperatively. The HoloLens is a head-mounted display (HMD) AR device that uses a transparent display. With the aid of a mixed-reality application developed with Unity, Brutus may be controlled intelligently by being presented with essential information for testing structures. According to the described experiment's findings, high level control for SHM applications is made possible by
supplementing a control panel with crucial data that is continuously gathered from sensors. The paper's findings demonstrate the AR control tests and user limitations.

**Ramirez, Jimena** - Major: Molecular Biology, East Central University  
Mentor: Dr. Alisha Howard, Associate professor of Molecular Biology, Assistant chair of Department of Biological and Environmental Sciences, Department of Biological and Environmental Sciences  
Oral Presentation Session #4, Room: Acoma A  
**Title:** Development of a Bioassay for optimized activity of ULP in SUMO-tag expressions  
**Abstract:** GFP-SUMO1 is a recombinant fusion protein that will be used as a control for the eventual activity testing of an enzyme known as Cas13a. Cas13a is utilized for identification and detection of nucleic acids, which is commonly used for rapid diagnostic testing. SUMO’s expression will also give more insight on the functions and interactions it has with ULP1, a protease that can cleave off SUMO by reading a cleavage sequence. Before following through with GFP-SUMO's expression, its high-purity DNA was isolated from the bacterial strain it was initially stored in through a mini-prep procedure. Once isolated, the plasmid was further investigated through plasmid sequencing for its distinct accommodations. From analyzing the sequence, the plasmid was found to have a T7-based expression vector, which relies on the specificity of a particular inducing agent and competent cells needed for expression. With this information, GFP-SUMO was expressed with IPTG and BL21 cells, and test inductions were shown on a SDS-PAGE gel. The final expressed pellets will undergo purification and ultimately be compared to Cas13a’s purified samples.

**Simonson, Renae** - Major: Biology, University of New Mexico  
Mentor: Mubarak Hussain Syed, Assistant Professor, Department of Biology  
Oral Presentation Session #4, Room: Lobo B  
**Title:** Type II Neuroblast and Protein Coding Gene Expression in Drosophila melanogaster  
**Abstract:** Neural stem cells are able to generate different types of cells in the brain, however, the molecular mechanisms underlying this process are not fully understood. Neurodevelopmental disorders, such as autism, intellectual disabilities and conduct disorders, result from disruption of tightly coordinated temporal events that are needed for brain development. In this research, I used the model organism Drosophila melanogaster to analyze the expression of protein coding genes (PCGs) thought to be involved with the development of the brain. I expected PCGs Hr4, Hr78 and Scro to play an important role in the creation of different neuron types. In order to analyze the expression of PCGs, I selected for and ordered Drosophila melanogaster flies with PCGs involved in cell differentiation, cell fate commitment and neuroblast fate determination, crossed them if needed and grew them to the third instar stage. The third instar larvae were dissected, fixed and scanned to screen for expression of both the PCG of interest and type II neuroblasts on the lobes of the brain. I found that Hr78 and Hr4 expressed type II neuroblasts and the PCG of interest in the images generated. Next steps are: knocking down target PCGs and observing the effects in adult flies.
Victoria, Yeritzi - Major: Psychology, California State University, Monterey Bay
Mentor: Dr. Renee Penalver, Assistant Professor, Department of Psychology
Oral Presentation Session #4, Room: Santa Ana A
**Title:** False Memory and Source Monitoring in Bilinguals
**Abstract:** This study aims to investigate how language and memory are organized in the minds of bilinguals. False memory is memory for an event that did not actually occur (Deese, 1959). The Deese-Roediger and McDermott (DRM model) false memory paradigm is the leading model of false memory. Source memory is memory for the context in which a particular target item is learned (Parker, 1995). The source-monitoring framework is the leading model of source memory (Johnson, Hashtroudi, & Lindsay, 1993). Source memory and false memory are related systems; that is, confusion between sources of information (e.g., source misattribution) may lead to false memories.

Source memory and false memory were examined in bilingual (e.g., Spanish-English bilinguals) and English monolingual language groups. The experiment examines how language group status (e.g., bilingual or monolingual) affects false recognition and source recognition. The study presented bilingual and monolingual participants with a list of words from the DRM model during the encoding phase. Additionally, we asked bilingual participants to discriminate between two external sources (i.e., Spanish word presentation/English word presentation) in a source memory task.

Antu, Marcus - Major: Psychology, Our Lady of the Lake University
Mentor: Dr. Kathryn Anderson, Professor of Psychology, Department of Psychology
Oral Presentation Session #5, Room: Acoma B
**Title:** Participant-Ascribed Anthropomorphism in Human-Robot Interactions
**Abstract:** To determine whether anthropomorphism through storytelling and movement engendered empathic concern towards inanimate HEXBUG robots, we will ask participants to smash robots with a hammer that either (1) have a personal story and move, (2) have a story and do not move, (3) do not have a story and move, and (4) do not have a story and do not move. Time elapsed from receiving the researcher’s instructions to smashing the robot is the measure of empathic concern. Participants will self-report reasons for hesitating along with reactions towards smashing the robot. Consistent with Darling (2015), we expect that participants assigned to the robot movement conditions and those assigned to the story conditions will hesitate longer than those assigned to the no-movement and no-story conditions. In addition to these main effects, we also anticipate an interaction between the story and movement conditions: HEXBUGS with stories and that move should engender the greatest empathic concern and hesitation time. Findings seek to identify the underlying social mechanisms that govern human-robot interactions for use in developing more effective robotic social companions.

Butler, Samantha - Major: Molecular and Cellular Biology, Boise State University
Mentor: Dr. Juliette Tinker, Professor, Department of Biological Sciences
Oral Presentation Session #5, Room: Isleta
**Title:** Eat The Raw Cookie Dough: Salmonella Vaccine Development By Exploring Salmonella Toxins  
**Abstract:** Salmonella is a highly antibiotic-resistant Gram-negative bacteria that is the most reported bacterial food-borne disease. Despite increases in awareness and sanitation, the incidence of Salmonella has continued to increase. A vaccine to combat this important pathogen in agriculturally important animals would help to protect humans. AB5 toxins are key bacterial virulence factors and have been used as vaccine antigens. We have previously characterized an AB5 toxin of S. Typhimurium, called ArtAB, to better understand its role in pathogenesis. We hypothesized that other AB5 toxins can be found using Salmonella whole genome sequence searches. Using PCR, we have identified SCL in isolates of S. Typhimurium and cloned it into a plasmid for expression in E.coli. Protein purification using D-galactose affinity was not successful to purify the Scl A and B subunits, and other methods are currently being explored including cloning the B subunit alone. In addition, we have tested the DNA from bovine fecal samples to determine if the artAB gene is present and will test these samples for SCL in the future. This work will support future studies involving antigen and antibody testing with the goal of animal studies and clinical trials to develop a novel bovine Salmonella vaccine.

**Cabra, Annalise** - Major: Physics and Mathematics, University of Colorado Boulder  
Mentor: Dr. Joshua Faber, School Head, School of Mathematical Sciences  
Oral Presentation Session #5, Room: Lobo A  
**Title:** Trajectories of light around a Kerr-Newman black hole using numerical techniques.  
**Abstract:** Black holes are renowned for their incredibly strong gravitational pull. As massless particles, photons are affected by this gravitational force as they draw near the black hole. The black hole's various properties, such as its spin, electrical charge, and impact parameters, influence the light path as it orbits around it. These parameters can be incorporated into an elliptic integral, which determines the closest distance a photon can approach the black hole without getting pulled in. Asymptotic approximate methods are also used to handle this scenario. To solve for these parameters, MATLAB, and analytic methods were applied, including Taylor expansions, to break down all relevant quantities. Overall, expansions were derived for the bending angle as a function of the radial distance from the black hole in both the strong and weak-field limits.

**Howe, Bailey** - Major: Molecular Biology, East Central University  
Mentor: Dr. Alisha Howard, Associate Professor, Department of Biological and Environmental Sciences  
Oral Presentation Session #5, Room: Acoma A  
**Title:** Genetic Optimization of HTLV-1 Oncoprotein Tax  
**Abstract:** Human T-cell Leukemia Virus type 1 (HTLV-1) is the retrovirus responsible for the aggressive cancer, Adult T-cell Lymphoma. Within this malignant evolution, the virally-encoded oncoprotein Tax acts as a transcriptive promoter in the signaling pathways of CREB and p300. Despite the extensive research into Tax's interactions with
cellular co-activators, potential interactions have yet to be completely explored, likely caused by the difficulty in using conventional molecular modus operandi when characterizing Tax. However, genetically optimizing the oncoprotein possesses the possibility of facilitating further examination into Tax-coactivator interactions. This optimization is executed through the sequential application of three distinct peptide tags and then translocated from a T5 lac-operator vector to a previously modified T7 pET expression vector, creating a new recombinant plasmid. This genetically optimized Tax variant and its associated modifications offer a promising platform for deciphering the intricate molecular events underpinning Tax-induced oncogenesis.

**Moore-Petinak, Thairu** - Major: Psychology/Criminal Justice, Eastern Michigan University
Mentor: Dr. Kimberly Brown, Assistant Director, McNair Scholars Program (Eastern Michigan University), Department of Education
Oral Presentation Session #5, Room: Santa Ana A
**Title:** Confronting child sexual abuse by stigma reduction: Evaluating the impact of narrative humanization
**Abstract:** The stigmatization of individuals with a pedophilic orientation prompts maladaptive functioning in several domains and is associated with deleterious effects in the realm of child sexual abuse (CSA), most notably an increased risk of committing a sexual offense. A growing body of research has examined interventions aimed at reducing pedophilic stigmatization thereby increasing treatment utilization and early intervention. The present study evaluates the impact of narrative humanization and informative material interventions on university students’ explicit attitudes toward pedophilic-oriented individuals, as compared to a control condition. Participants completed a series of baseline measures, followed by exposure to either an intervention or the control condition. Post-manipulation measures were administered to assess changes in explicit views toward individuals with a pedophilic orientation. We hypothesized that both interventions will significantly reduce negative perceptions, but that narrative humanization will exhibit a greater effect size. Preliminary results reveal stigma-reducing effects among all conditions, particularly both interventions.

**Mroz, Cameron** - Major: Biology and Chemistry, University of New Mexico
Mentor: Dr. William Sherman Garver, Research Professor, Department of Chemistry and Chemical Biology
Oral Presentation Session #5, Room: Luminaria
**Title:** Multiple variant and high-resolution genotype-phenotype analysis using novel near-haploid human Niemann-Pick C1 fibroblast cell-lines.
**Abstract:** Niemann-Pick C1 (NPC1) disease is an autosomal recessive lysosomal storage disease which affects the NPC1 protein. The role of the NPC1 protein is to transfer lipids from late endosomes/early lysosomes into the cytoplasm of the cell for usage; this disease hinders or stops that process from occurring. Complex gene-gene interactions (epistasis) make this disease difficult to study because modifier genes can often mask or reduce the expression of certain mutations. To circumvent this, our study uses novel near-haploid human NPC1 fibroblast cell-lines modified by CRISPR/Cas9 to...
contain mutations of NPC1 disease to conduct our genotype-phenotype analysis. For this study, 4 near-haploid cell lines with common NPC1 disease variants and a control cell line were grown to confluency in 12-well plates. Cholesterol and protein counts were measured using spectrophotometry and were standardized by protein counts to ensure normalized datasets. Earlier findings suggested that mouse cells with dysfunctional NPC1 proteins will experience increased cholesterol for certain mutations. We expect to observe a similar trend, given the role of NPC1 in lipid efflux from endocytic compartments. Better defining the phenotypical expression of NPC1 disease variants will allow for development of better therapeutics which will help patients suffering from this debilitating disease.

Nunez, Niomi - Major: Journalism, Iona University  
Mentor: Dr. Mitchell Bard, Associate Professor, Media & Strategic Communications  
Oral Presentation Session #5, Room: Fiesta B  
Title: Learning social media on reality television: The affects reality television producers using social media as a means of gaining viewership.  
Abstract: This study examines the use of social media in the reality television (RTV) shows “The Circle,” “Ghosted,” and “Love Island: USA”—all of which make use of social media or the concept of social media relations to various degrees. As social media’s popularity increases its incorporation into RTV programming has become more expansive, making social networking the focal point of making RTV programs. With the understanding of social cognitive learning theory, this study also examines the potential influence RTV programing has on younger viewers usage of social media. After conducting a qualitative literature review, research reveals that RTV programing influences the social activities of those watching, and negatively impacts younger viewers understanding and engagement with various social media platforms.

Schwendiman, Damion - Major: Microbiology, University of Arizona  
Mentor: Dr. Luisa Ikner, Assistant Professor, Environmental Science  
Oral Presentation Session #5, Room: Lobo B  
Title: Efficacy of Forward Osmosis Rehydration Pouches in Rejecting Viruses from Virus-Spiked Challenge Water  
Abstract: Wastewater treatment and clean water access are limited worldwide, leading to waterborne diseases and dehydration. Point-of-use forward osmosis pouches offer a potential solution. This study tested the efficacy of a forward osmosis pouch in removing viral content from challenge water. The pouch uses forward osmosis for filtration, creating an Oral Rehydration Solution without an external energy source. Tests using deionized and brackish water spiked with bacteriophages MS2 and PhiX-174 showed an overall rejection of 99.999% of viral content. However, PhiX-174 and MS2 were detected in filtered samples, showing incomplete bacteriophage removal. The pouch doesn’t provide virus-free drinking water, as Phi-X 174 is not completely rejected. Future studies should explore pouch performance with diverse challenge waters and viral waterborne pathogens to enhance data on pouch efficacy.

Smith, Tyronae - Major: Political Science, Dillard University
Mentor: Dr. Lakeyta Monique Bonnette-Bailey, Professor, Department of Africana Studies, Georgia State University
Oral Presentation Session #5, Room: Fiesta A
Title: *Pulse of the People: Political Rap Music and Black Political Attitudes, The Political Rap Database*
Abstract: The Political Rap Database uses a political rap criterion to categorize political rap songs. This database is an extension of Dr. Lakeyta Bonnette-Bailey’s research in her book *Pulse of the People: Political Rap Music and Black Political Attitudes*. We define political rap as songs that: display political references and either reference social problems or advocate solutions. To build the database, we data scraped all songs from Lyrics.com that contain certain political terms and highlighted the specific lyrics that qualify the songs as political. Additionally, we analyzed texts that highlighted the role of Hip-Hop in political and social spaces, the initiatives it has prompted, and the evolution of the American general public’s attitudes toward the genre.

Ulloa, Mario - Major: Anthropology & Comparative Literature, University of New Mexico
Mentor: Dr. Les Field, Professor, Department of Anthropology
Oral Presentation Session #5, Room: Santa Ana B
Title: *Counterpublics and Everyday Practice: Bolivians’ Social Media Tactics against the Jeanine Anez Presidency*
Abstract: Through what tactics were Bolivians able to keep political discourse animated through means that escaped the government's purview? This project examines the consequences of the 2019 coup ousting Bolivian president Evo Morales and MAS (Moviemeinto al Socialismo) party members and the seizing of power by the Bolivian right-wing following the 2019 general elections, finally, the later return of the MAS to power. This paper will analyze the Bolivian public sphere, focusing on how counterpublics consisting of oppressed peoples like Indigenous and lower-class campesino groups migrated to social media after the 2019 coup and how these groups utilized social media to challenge entrenched strategies of marginalization. This project focuses on people’s ability to communicate opinions and representation through everyday practices that challenge repressive systems. The use of theories of practice—the analysis of how people are shaped by and, in turn, shape the social world, as explicated by Bourdieu and Certeau—is thus essential for this study. Combining Bourdieu’s and Certeau’s work with. Micheal Warner’s definition of counterpublics as discursive relationships with strangers with common interests united through means of circulation, this project will answer how counterpublics operated to re-establish popular elections through everyday practices—particularly social media.

Abkenar, Nima - Major: Philosophy, University of Nevada, Las Vegas
Mentor: Ian Dove, Associate Professor, Department of Philosophy
Oral Presentation Session #6, Room: Fiesta B
Title: *The State-of-Being of an Art-Object*
Abstract: What is the role of the author in relation to the meaning of a piece? Foucault argues that the author relinquishes his individuality, instead playing the role of a functional principle. Gadamer, siding with Foucault, establishes that in instrumentalizing
the author, the audience sets herself within the conditions of the author. This argument poses the author as a constant. In this research, I argue that the audience does not have the capacity to do so, as the art-object does not necessarily transmit the conditions of its conception. Thus, the author is in fact a variable in a dialectical relation with the audience. In interpreting a work, the audience forms a new author, and in her relation with that author, she determines the state-of-being of the art-object.

Aguilar Carranza, Daniela - Major: International Studies, Sociology, and Spanish, University of Idaho
Mentor: Dr. Patricia Wren, Professor of Public Health
Chair, Department of Public Health, Department of Public Health (Wayne State University)
Oral Presentation Session #6, Room: Fiesta A
Title: Impact of Stress on Detroit Police Officers’ Health
Abstract: Purpose – This study examines the effects that stress has on Detroit Police Department’s officers’ health and the role that support plays in mediating that impact. Police officers face intense scrutiny from the public and are often exposed to violence and traumatic events; it is important to understand how the resulting stress can affect officers and how different types of support can help officers manage it.

Design/methodology/approach – 222 Detroit Police Department officers completed an in-person survey that provided data that was analyzed using a serial mediation to determine the direct and indirect relationships between perceptions, stress, social support, and health.

Findings – Perceptions had a direct relationship with physical health, with stress as the only mediator between them. There was no significant relationship between support and physical health. Although perceptions did not have a significant influence on mental health, both stress and support were significant mediators for the relationship between them.

Practical Implications – Addressing barriers to social support and support programs is important in providing officers with coping strategies and sources of relief that can help counteract the negative impacts that stress can have on their mental health.

Alves, Ryan - Major: History and Anthropology, Colorado State University
Mentor: Dr. Erin Jordan, Assistant Professor of Instruction, Department of History
Oral Presentation Session #6, Room: Santa Ana B
Title: Mediterranean Eunuch during the Early Medieval Period
Abstract: The Mediterranean is one of the most important regions in the annals of history. Romans, Persians, Moors, Jews, Normans, and many others had lived, fought, prayed, and died around this sea. An unfathomable number of ideas have been born and extinguished on its shores. Two major and dominant concepts from the region were Christianity and Islam. These religions changed how the people of the early medieval period thought about their function and purpose, both spiritually and literally. For the
Byzantine Empire and the young Islamic Dynasties, their theological views would influence most parts of their society, including the dubious aspects. However, not all ideas are strong enough to extinguish practices. Eunuchs were used in the Eastern Mediterranean for millennia. Their function was vital for these archaic empires. As both religions grew in popularity, the category of eunuch became more ideologically opposed but remained socially useful. Their appearances, deviation from traditional masculinity, castration, and unique gender category would conflict with many new beliefs. However, the practice and use of eunuchs were not extinguished; instead, their perception and means of creation would change. Though facing opposition, the complex social system of these medieval societies allowed for another gender category, the eunuch.

Asante, Nhyira - Major: Biomedical Science, Rochester Institute of Technology
Mentor: Dr. Iris Rivero, Dr. Karin Wuertz-Kozak, Affiliate Faculty, Extended Faculty Member, Department of Industrial and Systems Engineering, Department of Biomedical Engineering
Oral Presentation Session #6, Room: Isleta
**Title:** Exploring Feminization Maxillofacial Surgery with 3D Surgical Planning
**Abstract:** This study aims to gain insights into the three-dimensional and bidimensional anatomical changes resulting from surgical interventions performed by virtual surgical planning in the lower facial region with the purpose of facial feminization by evaluating specific cephalometric points. This project will be carried out through the analysis of computed tomography (CT) scans in a sample of 10 patients undergoing facial feminization processes in the lower facial third with the following osteotomies: genioplasty, mandibular angle reduction, sagittal bone cuts, and lateral cortex reduction of the mandibular body. The quantified variables will be performed on 13 anatomical landmarks for the lower facial third. All measurements will be made using the software Mimics (Materialise, Leuven, Belgium) of the patients in their original state (pre-surgical) and also will be carried out after the osteotomies are performed virtually. In order to determine the volumetric and two-dimensional differences quantified to establish the reduction rate in facial feminization processes in the chin, lateral vertex, and mandible angles.

Bernal, RaLisa - Major: Computer Information System and Security, Mathematics, Our Lady of the Lake University
Mentor: Dr James O Cox, Professor, Department of Computer Information System and Security
Oral Presentation Session #6, Room: Lobo A
**Title:** Can Mathematical Understanding Affect Programming?
**Abstract:** Although there has been research done on the relationship between math and computer programming, there has been little to no research done on how a student’s understanding of math affects their computer programming skills. Although previous research indicates that mathematical ability is said to be a reliable predictor of the students’ understanding in programming (G. White, M. Sivitanides, 2003), there is a dearth of quantitative research on the topic. This study addresses their research gap by using a math self-efficacy instrument along with the student’s self-reported grades in
both their math and computer programming courses they have taken in order to explore this hypothesized correlation. The findings of this study can help the academic community to offer more services to help future programmers in succeeding. This study contributes to the field with more quantitative evidence to help in the decision-making process of providing support to students in programming courses.

**Moreno, Sara** - Major: Psychology, St. Edward's University
Mentor: Dr. Kadie R. Rackley, Assistant Professor of Psychology, Department of Psychology & Behavioral Neuroscience
Oral Presentation Session #6, Room: Acoma B
**Title:** Impostorism and Family Achievement Guilt in College Students
**Abstract:** Research shows psychological barriers, like impostorism, increase the likelihood of First-Generation College students (FGCs) leaving college before finishing (Jury et al., 2017). Since we also tend to see impostorism in students who feel guilt about their student role (Stone-Sabali et al., 2023), the goal of this study was to examine relationships between impostorism and family achievement guilt, and how these relate to sense of belonging and well-being. Our sample consisted of 47 college students, with 20 (42.6%) FGCs and 27 (57.4%) Continuing-Generation College Students (CGCs). Participants completed questionnaires to assess Family Achievement Guilt, Impostorism, Sense of Belonging, and Well-Being. Independent t-tests show FGCs experience more guilt, especially about having more privileges than other family members, than CGCs. Correlations show impostorism positively relates to guilt and negatively relates to belonging and well-being. Also guilt, particularly due to leaving family and experiencing pressures, negatively relates to well-being. These findings show FGCs experience struggles while at college, and we urge higher education to expand protective factors to support FGCs.

**Nava Martinez, Maria** - Major: Biology, University of New Mexico
Mentor: Dr. Lisa Barrow, Assistant Professor, Department of Biology
Oral Presentation Session #6, Room: Acoma A
**Title:** Population Genomics of Frogs on Barrier Islands
**Abstract:** Species extinction is an urgent concern for humanity due to ongoing climate change, population decreases, and local extinctions of various wildlife groups. Therefore, documenting and understanding biodiversity patterns of sensitive taxa is important, especially genetic diversity which can improve survival potential. This research has conducted population genetic analyses within four co-distributed frog species (Anaxyrus terrestris, Hyla cinerea, Hyla squirella and Rana sphenocephala) to measure genetic diversity and compare genomics between populations in mainland Florida and nearby barrier islands. Analyses aimed to examine intraspecific genetic structure and infer the mechanisms that maintain genomic diversity patterns between island and mainland populations. Nucleotide diversity (pi) and heterozygosity (He) were calculated using the bioinformatic pipeline Stacks from datasets generated using, ddRAD sequencing protocol within each frog species. In addition, we used several R packages to explore and assess the population genetic structure of the studied frog species. We found that all species showed higher nucleotide diversity in the mainland.
than in the island populations. Based on our dataset, no population structure was observed except for R. sphenoccephala. These results may be explained by recent colonization or ongoing gene flow between island and mainland populations.

**Solorio Hernandez, William** - Major: Physics and Math, University of Colorado Boulder
Mentor: Dr. Heather Lewandowski, Professor, Department of Physics
Oral Presentation Session #6, Room: Luminaria

**Title:** Characterizing the Collisions Between Cold Atoms and Molecules in Dual Magnetic and Electric Traps

**Abstract:** The interactions between cold and ultracold molecules can provide crucial insights into the chemistry of extreme environments, the transition from classical to quantum reaction dynamics, and precision measurements of reactions or fundamental constants. The OH and Rb Interacting in Traps (OHRbIT) experiment characterizes elastic and inelastic collisions between magnetically trapped Rb atoms and electrically trapped OH molecules by transporting magneto-optical trapped Rb atoms to the slowed OH molecules. Inelastic collisions cause trap loss while elastic collisions promote sympathetic cooling through thermal equilibrium and momentum exchange. To prepare for the experiment, we use absorption and ionization techniques to characterize and align the species to reference the OH cloud center as the benchmark. To characterize the balance between elastic and inelastic collisions, we determine the collision cross-section from the number and spatial distribution of the trapped OH.

**Williams-Vigil, Geoffrey** - Major: Psychology, University of New Mexico
Mentor: Dr. Tania Reynolds, Assistant Professor, Department of Psychology
Oral Presentation Session #6, Room: Santa Ana A

**Title:** Predicting Neuroticism and Anxiety From Perceived Social Support and Physical Capital

**Abstract:** After hundreds of thousands of years of evolution through natural selection, one might question how it is that humans still suffer from a variety of mental illnesses. It is possible that these illnesses may serve some kind purpose for survival. What is the function of mental illness in the context of human evolution? To what extent can we assess both biological and social factors in order to predict the likelihood that mental illness will surface in a person’s life? Previous research has shown that on average, anxiety and the personality trait of neuroticism are both seen in higher levels among women compared to men. However, greater variability in levels of these traits has been observed in men. We will administer a survey inquiring about participants’ levels of anxiety, neuroticism, social support, and physicality. Our hypothesis is that associations may be found which would attribute the difference between men and women’s levels of anxiety and neuroticism to body size and/or social support as opposed to biological sex. The results of this research will contribute to the field of evolutionary psychology, with further implications in the field of clinical psychology by offering explanations for patterns of anxiety and neuroticism.

**Bigham, Katie** - Major: Biology, Knox College
Oral Presentation Abstracts Listed by Session #
Thursday, September 7, 2023
Location: SUB Top Floor Rooms

Mentor: Dr. Judy Thorn, Professor, Department of Biology
Oral Presentation Session #7, Room: Isleta

Title: The Long-Term Effects of Hospital Conversions in Rural Western Illinois

Abstract: Rural healthcare has faced dwindling numbers of hospitals in the past few decades, with many communities left without a hospital or adequate access to care. There is little literature about the effects of hospital conversions on health-seeking behaviors, which are the likelihood of someone seeking out care, and quality of care, or how effectively healthcare is administered, in rural areas. This study addresses this gap by examining the long-term community health effects of hospital conversions in rural western Illinois. I conducted semi-structured interviews with individuals who live in rural communities. I found that hospital conversions in rural communities often lead to changes in the health-seeking behavior of residents within their community, with many residents traveling hours for care, as well as poorer quality of care.

Castro, Natalie - Major: Sociology, University of Colorado Boulder
Mentor: Dr. Brian Keegan, Assistant Professor, Department of Information Science
Oral Presentation Session #7, Room: Acoma B

Title: Exploring Board of Education Policy and School Performance: A Data Driven Approach

Abstract: Education manifests dynamically in response to the community and the environment around it. Comparing standard school performance metrics is easy, but understanding how achievement gaps develop from local policy requires an intersectional understanding. This work generates a dataset to analyze policy among Board of Education meetings for public K-12 schools in Colorado, closing a total data and literature gap. The research created serves twofold: first, the creation of an accessible database for educators and parents to query and review Board of Education meetings using the County Data Project; second, an exploratory analysis of how policy impacts education and students. The correlation between the environmental context of a school and its performance is demonstrated through an investigation of policy sentiment and topic frequency.

DeRaad, Melissa - Major: Chemistry, University of New Mexico
Mentor: Dr. Jeffrey Rack, Professor, Chemistry
Oral Presentation Session #7, Room: Luminaria

Title: Room Temperature Light-addressable Binuclear Complexes for Quantum Information Science

Abstract: The need for faster computers with increased computing power, and the desire to miniaturize has led to the creation of the emerging field of Quantum Information Science (QIS). While there are presently many challenges in the development of a quantum computer, two challenges are the short lifetime exhibited by current qubit materials and the need for supercooling. As part of the research to develop a room-temperature bi-nuclear molecular qubit for use in future quantum computers, the first step is to understand the method to reproducibly produce the isomerizing unit. The work of Petersen, et. al and their paper “Photochemistry of Pentacyanoferate(II) Complexes Containing Aromatic Nitrogen Heterocyclic Ligands” was used to provide a
framework for how to work with Pentacyanoferrate to create complexes with different ligands attached. Three of the complexes found within the paper were produced. Additionally, a complex with Isoquinoline as the ligand was also produced. The complexes were characterized, and the results were compared to the results found within the paper to verify that the desired complexes were achieved. Transient Absorption Spectroscopy (TAS) and Magnetic Circular Dichroism (MCD) will be collected in the near future. This data will extend our understanding of these complexes and will add to the work already done by Petersen, et. al.

**Dominguez Tarango, Karina** - Major: Elementary Education, University of New Mexico
Mentor: Dr. Mia Sosa-Provencio, Associate Professor, Department of Teacher Education, Educational Leadership and Policy
Oral Presentation Session #7, Room: Santa Ana B

**Title:** Understanding and Enriching the Urban Schooling of Latino/Mexican-American Males through the Lens of Educational Agency

**Abstract:** Our education system is creating a disservice to Latino/Mexican-American males by not providing them with adequate resources to succeed in high school. The purpose of this study is to understand how providing spaces, wherein high school Latino/Mexican-American male students may experience agency in the classroom, may shape their educational outcomes. The research question that guided this study was: What are the schooling experiences of three Mexican-American males and one Anglo male who recently attended an urban high school which predominantly enrolls low income Mexican/Mexican-American/multiracial students? To address this question, I reviewed previously collected data that was collected and transcribed in 2019 by Dr. Sosa-Provencio in her original research study. To analyze this data, I utilized a qualitative Testimonio critical case study methodology to organize, analyze, and collapse data into thematic codes and contextualized themes. Findings suggest that Latino/Mexican-American males desire and often do not find meaningful learning experiences or high expectations in schools. This research study has implications for understanding the role of agency, for creating spaces where males of color may express and expand their educational dreams, and for centering the educational needs and strengths of diverse populations of high school males and all marginalized young people.

**Forstner, Coreena** - Major: Psychology, Eastern Michigan University
Mentor: Dr. Kimberly Barrett, Associate Professor of Criminology, Department of Sociology, Anthropology, and Criminology
Oral Presentation Session #7, Room: Fiesta A

**Title:** The Nexus of Psychosis, Self-Harm, and Baseline Psychiatric Symptoms in Correctional Solitary Confinement

**Abstract:** Solitary confinement, also referred to as administrative segregation or restrictive housing, is a type of inmate placement within several U.S. prisons and jails, at the state and federal levels. Solitary confinement is when an inmate is removed from the general prison population and is placed in an isolated cell for 22 hours or more on average daily for 15 days or more (The Correctional Leaders Association & The Arthur
Liman Center, 2022). This presentation analyzes the psychological impact of administrative segregation using data from the "Evaluation of the Psychological Effects of Administrative Segregation in Colorado, 2007-2010 Survey" conducted by O'Keefe & Klebe in 2014. We explore the relationship between psychosis, self-harm incidents, and inmates' baseline psychiatric well-being during solitary confinement. The first hypothesis examines how the presence of psychosis during segregation affects the risk of self-harm incidents. The second hypothesis investigates the correlation between psychotic mental health crises, self-harm incidents, and higher baseline psychiatric symptom scores measured by the Brief Psychiatric Rating Scale. This study sheds light on critical connections for developing effective mental health interventions in correctional solitary confinement.

Kann, Gabriella - Major: English, Iona University  
Mentor: Amy Stackhouse, Ph.D., Associate Professor, English  
Oral Presentation Session #7, Room: Fiesta B  
Title: Education Reform in 17th-Century England  
Abstract: This research explains how 17th-century education reform impacted the modern education system. Education in the 17th century presented an educational shift from spiritual studies to practical instruction. The theoretical expositions of educational reformers such as Charles Hoole, Samuel Hartlib and John Milton aimed to make education exploratory and useful to the needs of society. By researching previous teaching methods from the Medieval era and the Renaissance, an understanding of the reformed teaching methods of the 17th century and the modern era can be attained.

Osterhoudt, Lizzy - Major: Zoology, Colorado State University  
Mentor: Cory Williams, Assistant Professor, Department of Biology  
Oral Presentation Session #7, Room: Acoma A  
Title: Exploring the Relationship of Fecal Cortisol Metabolites to Wyoming Ground Squirrel Pups Using Traditional Ecological Knowledge  
Abstract: Wyoming Ground Squirrel populations are plentiful within northern America. However, little is known regarding the pup’s physiology during emergence. Fecal glucocorticoid metabolite concentrations of pups will help create a larger picture in terms of understanding their relationship with the environment. Wyoming Ground Squirrel fecal samples were collected from Colorado State University’s Mountain Campus. Analyzing a local population will allow for a more in-depth understanding of how burrowing creatures respond to climate change. Traditional Ecological Knowledge was used while conducting the study. Thus, a new perspective in the research of this species. The Medicine Wheel is also used as a tool throughout the study. Combining Western Science practices with Traditional Ecological Knowledge allows for a unique perspective and experience in research of the Wyoming Ground Squirrels.

Rodriguez, Casandra - Major: Psychology and Criminal Justice, Our Lady of the Lake University  
Mentor: Dr. Brittany A. Chozinski, Associate Professor, Department of Applied Social and Cultural Sciences
Oral Presentation Session #7, Room: Santa Ana A  
**Title:** Can Cartoon Help Build Empathy and Social Cues for Children Who Have Displayed Antisocial Personality Disorder?  
**Abstract:** The purpose of this research is to determine if children with a conduct disorder or antisocial personality disorder diagnosis can build social cues through cartoons. There has been little research that focuses on potential positive impacts on children who have conduct disorder or antisocial personality disorder diagnosis. There has been research involving children from the autism spectrum who use cartoons, videos, animations, or games to introduce social cues. It is important to provide children with positive learning opportunities to help them build a sense of security and strong relationships with their peers and authority figures. Analyzing the social cues that are portrayed in specific cartoons can be a useful way to learn about the skills that are necessary for effective social interactions. As well as looking at how the cartoon creators were able to simplify the behavior for the children to understand without the message being overwhelming that children are not able to grasp the concept. Depending on the collection of skills identified, research findings could potentially be used to create a cartoon at a later date.

**Thomas, John** - Major: Biology, Concord University  
Mentor: Dr. Umesh Reddy, Professor of Genetics and Genomics Department of Biology, Genetics  
Oral Presentation Session #7, Room: Lobo A  
**Title:** Optimization of Regeneration for Tomato from Cotyledons and Hypocotyledons  
**Abstract:** The Micro-tom variety of tomatoes is a model crop for regeneration and transformation procedures. Here, we aimed to standardize the regeneration protocol in a simple and efficient manner. This was accomplished using cotyledons and Hypocotyledons from cultured plantlets for regeneration. Usually, Elongation media follows regeneration in procedures and contains the phytohormones Zeatin and Indolyl acetic Acid (IAA) in concentrations of 2 mg-L and 0.2 mg-L and 1 mg-L, 0.1 mg-L respectively. Whereas, in our study, elongation media was used containing 0.5 mg-L zeatin without IAA. Additionally, Rooting media usually contains the root induction hormone indole butyric acid but, in our study, root generation was accomplished using a half-strength MS media containing none of these hormones. These optimizations represent a much more cost-efficient and simplified procedure considering the costs of these materials and the applications this procedure has in research done on a larger scale.

**Bornhoft, Allison** - Major: Environmental Science, University of Arizona  
Mentor: Dr. Luisa Ikner, Assistant Professor, Department of Environmental Science  
Oral Presentation Session #8, Room: Luminaria  
**Title:** Overview of Macroalgae as a Municipal Wastewater Treatment  
**Abstract:** Changes in environmental conditions driven by human behavior have led to adverse effects, therefore it is necessary that humans adapt to these changes in order to maintain global health. One such challenge is the release of municipal waste into the environment and causing contaminated waters. Municipal wastewater is the slurry of
domestic and industrial sewage that comes from a community and is reclaimed using a conventional wastewater treatment train. Macroalgae (i.e. seaweed) is being researched as a renewable resource for energy production, food sustainability, and ecosystem restoration. Different algal species have been shown to reduce bacterial concentrations in wastewater by physical removal of algal biomass that traps bacteria like Escherichia coli and Yersinia ruckeri. This presentation summarizes the current state of the field and explores different avenues of municipal wastewater remediation using algae. The review confirms the ability that seaweed can contribute to providing additional water treatments worldwide.

Casanova, Naomi - Major: Criminal Justice and Psychology, Our Lady of the Lake University
Mentor: Dr. Brittany A. Chozinski, Associate Professor of Sociology, Applied Social and Cultural Sciences
Oral Presentation Session #8, Room: Acoma B
Title: What protective factors help prevent children who have been abused or neglected stay out of the criminal justice system later in life?
Abstract: Children who grow up in an unstable home, who are neglected and or abused, face many challenges later in life. Specifically, these children in particular are at greater risk of making poor decisions that may result in incarceration. Giving their up bringing these children are socially influenced to accept these behaviors as the norm. As a result, they follow that pathway and make a wrong call. This study aims to determine what protective factors help prevent children who have been abused or neglected to stay out of the criminal justice system later in life. This qualitative study will utilize interviews with current and former employees of Child Protective Services. Following each interview, the data will be transcribed, coded, and analyzed. The resulting data will determine what protective factors the Child Protective Service Employees believed would have a positive influence on the children’s lives and prevent them from interacting with the justice system. This research will identify a variety of protective factors for consideration in future research. The identified conditions can be tested for efficacy ultimately leading to the identification of a preventative approach with the greatest chance of resulting in a positive outcome.

Garcia Soriano, Jessica - Major: Criminal Justice, Iona University
Mentor: Dr. Suray Duygulu, Clinical Lecturer of Criminal Justice, Graduate Coordinator Criminal Justice, Department of Criminal Justice
Oral Presentation Session #8, Room: Fiesta A
Title: College Students and Law Enforcement Careers
Abstract: With the expansion of media onto our everyday lives the perceptions of law enforcement have changed. There have been several incidents between the police and citizens in the recent years that are the focus of the media and have become highly debated topics. The careers in law enforcement have a variety of rewards and risks. These are the factors that affect the way law enforcement careers are perceived. College students view on law enforcement careers affects the direction of the field. College students are the future of these careers and in recent years their view has
changed because of the medias influence. In the survey that will be provided to Iona University students it will explore the students’ views on the risk and rewards, the law enforcement profession and law enforcement as a career option.

**Lemus Gordillo, Karla Citlali** - Major: Double major in Chemistry and Political Science, University of Colorado Boulder  
Mentor: Dr.Joseph Wilkins, Dr.Ryan Stauffer, Dr.Anne M Thompson, Assistant Professor, Researcher, Researcher, Howard University, GSFC NASA, GSFC NASA  
Oral Presentation Session #8, Room: Lobo A  
**Title: Chasing Fire: Tracking Ozone Plumes from Canadian Wildfires**  
**Abstract:** High temperatures, low precipitation, low moisture, and prolonged droughts exacerbated by climate change increase the likelihood of wildfires. This year-to-date, Canada has experienced 882 fires that have scorched 27 million acres. Wildfires release volatile organic compounds and nitrogen oxides that create ozone; a secondary pollutant that can travel great distances. 6 ozonesonde balloon launches occurred during this summer. From those days, three (06/13, 06/14, 06/16) showed an increase in atmospheric ozone concentrations. We employed HYSPLIT, a trajectory model, to release simulated ozone formed pollution plumes, forward and backwards in time, at various heights to track wildfire plume emissions. After using HYSPLIT to track plumes and observed vertical profiles, it was determined that smoke pollution originated from surrounding areas of Canadian wildfires, also seen in ozonesonde transects at various levels. Canadian wildfires released 600 metric tons of carbon dioxide causing 150,000 Canadian residents to move and 90 million Americans to be affected by air quality levels. A better understanding of how weather and pollutant transport patterns work can be used to better prepare the public and aid human health.

**Martinez, Terra** - Major: Fish, Wildlife and Conservation Ecology Major, New Mexico State University  
Mentor: Dr. Zachary Klein, Professor, Department of Fish Wildlife and Conservation Ecology  
Oral Presentation Session #8, Room: Acoma A  
**Title: Comparison of non-lethal aging structures for Chihuahua Chub and Rio Grande Sucker**  
**Abstract:** Chihuahua Chub Gila nigrescens & Rio Grande Sucker Catostomus plebeius are species of conservation concern that occur in the Mimbres River, New Mexico. In an effort to better understand how these populations function, we evaluated the precision of non-lethal aging structures for Chihuahua Chub & Rio Grande Sucker. Scales & pectoral fin rays were collected from 109 Chihuahua Chub & 123 Rio Grande Sucker in the Mimbres River between May 9 and May 24, 2022. Pectoral fin rays were mounted in epoxy & sectioned using a low-speed saw. Scales were mounted between two microscope slides. The age of each structure was estimated independently by three observers using a dissection microscope. In addition, each age estimate was given a confidence rating between 0 (no confidence) & 3 (complete confidence). Chihuahua Chub fin rays proved to be more precise than scales as evidenced by a relatively low coefficient of variation & high percent agreement. Pectoral fin rays & scales were
relatively imprecise for Rio Grande Sucker. Both structures had high coefficients of variation & low percent agreement among readers. Our results suggest that pectoral fin rays may be a useful structure for assessing the age and growth of Chihuahua Chub. However, alternative ageing structures should be assessed for Rio Grande Suckers given the imprecision of scales & pectoral fin rays.

Molina, Leslie - Major: English, University of New Mexico
Mentor: Dr. Marissa Greenberg, Associate Professor, Department of English Language and Literature
Oral Presentation Session #8, Room: Fiesta B
Title: Shakespeare's Disabled Characters: Unmasking Stigmatization and Romanticization as Reflective Tools of Society
Abstract: This analysis delves into the exploration of disability within Shakespeare's tragic plays and its impact on contemporary society. Shakespeare's use of stigmatization and romanticization as literary devices in King Lear, Macbeth, and Othello provides a compelling lens to analyze the representation of these conditions. I seek to uncover how society perceives disabilities, and how Shakespeare strategically utilizes these portrayals to evoke strong reactions from his audience. By examining the interplay of societal preconceptions and the characters' inevitable descent into madness, the study sheds light on the reinforcement of negative connotations attributed to mental illnesses within the cultural context. Through this exploration, I hope to reveal hidden narratives and provoke critical thought, fostering crucial discussions on literature's profound impact on societal norms and attitudes. This research will serve as a stepping stone to examining the intersectionality between disability and gender in Shakespeare's plays, contributing to contemporary discourse and activism surrounding disability rights, gender equality, and social justice. Ultimately, it highlights the timeless relevance of Shakespeare's work and its potential to shape perceptions and attitudes towards marginalized individuals, paving the way for a more inclusive and compassionate future.

Rosales, Joseph - Major: Psychology and Philosophy, Eastern Michigan University
Mentor: Dr. Choudhuri, Professor, Counseling Program
Oral Presentation Session #8, Room: Santa Ana B
Title: How Adverse Childhood Experiences Influence Development
Abstract: Adverse Childhood Experiences (ACEs) are increasingly recognized as potential determinants of developmental outcomes, with profound implications for physical, mental, and social well-being. In this presentation, we explore the developmental impacts of ACEs using a comprehensive review of existing literature and a meta-analysis of relevant studies. Our findings indicate a correlation between ACEs and developmental issues, such as cognitive delays, emotional instability, and social difficulties. This work contributes to our understanding of the lasting impacts of childhood trauma.

Trapp, Taryn - Major: Psychology, Texas Woman's University
Mentor: Dr. Christian Hart, Professor, Department of Psychology and Philosophy
Oral Presentation Abstracts Listed by Session #
Thursday, September 7, 2023
Location: SUB Top Floor Rooms

Oral Presentation Session #8, Room: Santa Ana A
**Title:** Openness About Death: A Survey on Death Attitudes and Lying About Death

**Abstract:** A convincing body of evidence suggests that the topic of death and dying is viewed as taboo in America, leading many people to avoid the topic. With this study, we wanted to expand our knowledge and explore how death attitudes correlate with openness and honesty about death. We predicted that those who are more fearful and avoidant on the subject of death would be less willing to discuss and be honest about death. In total 243 respondents with an average age of 30.54 completed the anonymous online survey. Included in the survey was the Death Attitudes Profile-Revised questionnaire as well as our own Willingness to Lie About Death scale. Supporting our hypothesis, we found that people who held more negative attitudes toward death were significantly less open to discussing death and more willing to lie about it.

**Zacahua, Fernando** - Major: Neurobiology and Philosophy, University of Wisconsin-Madison
Mentor: Dr. Chiara Cirelli, Research/Professor, Department of Psychiatry

Oral Presentation Session #8, Room: Isleta
**Title:** Testing SHY: The Synaptic Homeostasis Hypothesis of Sleep

**Abstract:** According to the synaptic homeostasis hypothesis (SHY) the price we pay for plasticity is sleep. During wake, we adapt to the environment and learn by strengthening synapses, which is energy-demanding and causes synaptic saturation. Sleep weakens most synapses, thus saving energy, avoiding synaptic saturation, and promoting learning. I will test the main claim of SHY - most synapses get stronger during wake and weaken during sleep - in the mouse striatum, a region that is highly plastic even in adulthood. I analyze how the interactions between astrocytes and synapses change between sleep and wake. Astrocytes provide energy to neurons in the form of lactate and control glutamate uptake. It was shown before that the interactions between astrocytes and synapses increase with wake and decrease with sleep in the cerebral cortex. We hypothesize that similar changes occur in the striatum. We are comparing three groups of mice (4 mice/group) that spent the last 6-8 hours spontaneously awake, sleep deprived, or asleep. Brains were collected and imaged using serial block-face scanning electron microscopy. We are using FIJI to 3D reconstruct the image stacks and measure astrocytic processes and synapses. The goal is to test whether during wake striatal synapses grow and the peripheral astrocytic processes move closer to the synapses.

**Barriga, John** - Major: Exercise Science, University of New Mexico
Mentor: Len Kravitz, Professor, Department of Exercise Science

Oral Presentation Session #9, Room: Isleta
**Title:** The Physiological Limitations of Endurance Exercise

**Abstract:** Endurance exercise can be defined as the ability to perform cardiovascular exercise, whether it be cross-country skiing, spinning, running, aerobic exercise or swimming, for an extended period of time. One is limited in this pursuit by a complex integration of multiple physiological functions. Despite the multifaceted nature,
endurance exercise is characterized by a straightforward requirement – the necessity to sustain repeated muscle contraction. This criterion is fulfilled through two essential functions – the ability to consume enough oxygen and an adequate fuel provision. The capacity for oxygen consumption relies upon the physiological parameters of maximal oxygen uptake, lactate threshold, and economy of movement in the given activity. This research review explores and summarizes the most recent scientific understandings of the contributing factors that limit the human body's ability to sustain intense cardiovascular bouts of exercise. Additionally, this review discusses current evidence-based training strategies for endurance exercises, explicitly focusing on factors such as maximal oxygen uptake (VO2 max), lactate threshold, central and peripheral limitations for VO2 max, exercise economy, and substrate availability.

**Basail-Niclaïsen, Desirée** - Major: B.S. Environmental Science, B.A. Geography, University of New Mexico
Mentor: Dr. Joseph Galewsky, Professor, Department of Earth and Planetary Sciences
Oral Presentation Session #9, Room: Acoma A
**Title:** Stable Isotopes in Water Vapor and its links with Aerosols and Atmospheric Convection
**Abstract:** Deep convective clouds that are associated with thunderstorms are an important feature of the climate system. However, these clouds are difficult to represent in climate models, and researchers need improved constraints on the processes that drive the life cycle of these clouds. How do aerosols in the atmosphere affect the physics of these clouds and the water cycle? Aerosols serve as cloud condensation nuclei that can exert fundamental controls over deep convective clouds. To the extent that aerosols affect condensation processes in clouds, stable isotopes in atmospheric water vapor should reflect many of the important impacts of aerosols on precipitating convection. This project uses data from the TRacking Aerosol Convection interactions ExpeRiment (TRACER) project collected at the Atmospheric Radiation Measurement facility in La Porte, Texas to test for correlations between aerosol concentration and size distribution with the isotopic composition of water vapor. The identification of such correlations is an important step forward in improving our knowledge of how aerosols can affect the atmospheric hydrologic cycle in deep convective settings.

**Cousino, Louis** - Major: Sociology, Grand Valley State University
Mentor: Dr. Rachel Campbell, Associate Professor, Department of Sociology
Oral Presentation Session #9, Room: Fiesta B
**Title:** Experiences and Expectations: Listening to Incoming First-Generation College Students
**Abstract:** Obtaining a college degree remains one of the primary ways that individuals secure their socioeconomic status. This status is more easily obtained for middle and upper-class students who have the economic, social, and cultural resources necessary to navigate higher education, which are generally transmitted by their parents (Anyon 1981). Inversely, obtaining a baccalaureate degree can be more difficult for first-generation college students (FGCS) whose parent(s) do not have their bachelor's degree. This study aims to explore FGCS's expectations about their upcoming college
journey. In-depth, semi-structured interviews will be conducted to explore the students' experiences and expectations. In doing so, this study hopes to build on the literature on FGCS outcomes and the best practices to support their education (Stebleton, Soria, and Albecker 2012).

**Esparza Valdez, Isis** - Major: Psychology, Our Lady of the Lake University  
Mentor: Dr. Jessica Quintero, Director of McNair Scholar's Program, Adult Education or Higher Ed.  
Oral Presentation Session #9, Room: Santa Ana B  
**Title:** Photovoice: A strengths-based look into Chicana/Latina first-generation college student success  
**Abstract:** Photovoice, a participatory action research, requires participants to be the main source of data collection. As reported by the National Center for Education Statistics College Enrollment Rates, since 2000 the percentage of Hispanic women enrolled in college has steadily increased. The purpose of the researchers using photovoice for this study is to bring awareness to First Generation Chicana/Latina and impart voice on their experiences that helped them through their post-secondary education, as well as what cultural factors or skills attribute to their success. On the first day, participants will be informed about the research, how to be active participants, and how the study will proceed. On the second day of the study, participants will be asked to take pictures from their daily lives and caption the picture explaining how the image answers the research question. On the third day of the study, participants will be gathered to discuss all submitted photos and they will all collectively choose up to 10 photographs they believe best addresses the research questions. The investigators will separately listen to an audio recording of the participants' dialogue to dissect and consider the focused theme of the study. The goal of this research is to increase visibility of First-Generation Chicana/Latinas in post-secondary education by viewing their culturally lived experiences.

**Harmon, Jua'Chelle** - Major: Psychology, Eastern Michigan University  
Mentor: Dr. Jamie Lawler, Associate Professor, Department of Psychology  
Oral Presentation Session #9, Room: Santa Ana A  
**Title:** The Impact of Food Insecurity on the Development of Psychopathology in Childhood and Adolescence: A Literature Review  
**Abstract:** With the widening inability to access affordable and nutritious food, many people worldwide deal with food insecurity. This raises concerns for the well-being of children in the United States because of the impact food insecurity has on the development of children regarding psychopathology. Recent research suggests that maternal depression, household sensitivity, parenting, and exposure to violence may directly link food insecurity and psychopathology. This paper reviews and synthesizes the evidence for these links and possible mechanisms to help determine future implications in terms of intervention for experienced food insecurity and related psychopathology.
Keywords: early childhood, food insecurity, psychopathology, mental health, children, adolescents

Henry, Autumn Rae - Major: Social Work, Texas Christian University
Mentor: Dr. Aesha John, Associate Professor, Department of Social Work
Oral Presentation Session #9, Room: Acoma B
Title: Emerging Adults' Perceptions of the Impact of COVID on Mental Health
Abstract: The COVID-19 pandemic has had a significant impact on the mental health of emerging adults, who must navigate the tasks of early adulthood. This mixed method study explores the COVID-19 pandemic impacts on the mental health of emerging adults. Researchers utilized surveys and focus group interviews to examine perceptions of study participants regarding the effects of COVID-19 on participants’ mental health and supports available during the pandemic. Sixteen college students aged 18-25 participated in the study, which was conducted at a private institution in Texas. Participants identified as 43.8% Hispanic, 31.3% White, and 12.5% Black and Asian. Among the participants, 81.3% identified as female, and 6.3% identified as male, nonbinary, or transgender. Participants' survey responses revealed adverse effects of COVID and thoughts of how COVID-19 impacted participants' sleep, appetite, and grades. Data also showed how participants did not feel supported by their school during the lockdown. However, most participants feel happy at least sometimes with how things are going in their life. This study illuminates negative effects of the pandemic lockdown, which for some resulted in a non-optimal homelife. In addition, findings highlighted unmet support needs and the extra steps taken to access resources.

Providence, Jordan - Major: Psychology, Iona University
Mentor: Dr. Mary Jane Skelly, Professor, Department of Psychology
Oral Presentation Session #9, Room: Fiesta A
Title: Impact of Self-Reported Alcohol Use on Reaction Time to Alcohol-related Cues
Abstract: The purpose of this study is to dive deeper into the science behind alcohol's impact on our nervous system and how they interact with the body so that we can better grasp its influence on the cognition. We plan to gather results through in-person testing on college students when it comes to alcohol-related cues. fNIRS machinery, the go/no-go test, and various questionnaires will be utilized to collect data.

Sulatt, Dora - Major: Chemistry, University of Massachusetts Boston
Mentor: Dr. Niya Sa, Associate Professor, Department of Chemistry
Oral Presentation Session #9, Room: Luminaria
Title: Prussian Blue Deposition on Various Working Electrodes
Abstract: Ion transport theory is a study of energy emittance of a specific ion going through two interfaces such as solid-liquid interface. The ion, metal cations, that is being studied for this project is Iron(II,III) hexacyanoferrate(II,III) also known as prussian blue. Prussian blue has excellent electronic properties due to its stability nature. Prussian blue synthesis and characterization was performed in a variety of electrolytes using a three-electrode beaker cell consisting of a fluorine doped tin (FTO) working electrode or Au disc electrode, platinum counter electrode, and Ag/AgCl reference electrode. Film
morphology was characterized by FESEM microscopy and the film stability is verified by cyclic voltammetry. Results indicate prussian blue started to decay by the time of the 60 CV cycles and is completely decomposed at the 80th cycle. While PB is more stable at the Au working electrode. The ultimate goal of this project is to have the Prussian Blue plated in gold surfaces to explore its ion transport properties, and cations such as Na+, Mg2+ and K+ are proposed to be studied.

Gilmore, Zachary - Major: Educational Neuroscience and German, Knox College
Mentor: Heather Hoffmann, Professor, Psychology
Oral Presentation Session #10, Room: Luminaria
**Title:** Review Tactics and the Brain
**Abstract:** Since learning requires review and optimization, diverse review strategies can potentiate learning. Various studies have found that many individual strategies can be compared from simple rereading of material to complex cognitive tasks, but little is known regarding the comparison of these tactics. Using presentations of GRE terms and their definitions and incorporating various review tactics, this study examined the effectiveness of several review strategies, including review, question generation, answering questions and free recall, in their ability to aid in retention of vocabulary words and their definitions. Results indicate that question generation is more effective than other strategies. This implies that question generation is more beneficial for students during review and it is encouraged that students and teachers employ it.

Jackson, Arieal - Major: Psychology B.S., Grand Valley State University
Mentor: Dr. Anna Hammersmith, Professor, Department of Sociology
Oral Presentation Session #10, Room: Acoma B
**Title:** The Split Lives created by Divorce: Impact on child well-being
**Abstract:** Prior research has documented the impact of divorce on children's socioemotional development, indicating that marital conflict can be externalized and internalized by the child. This project will add to current literature by analyzing the socioemotional outcomes of children who experience split lives created by divorce relative to children whose parents are still together. Moreover, this study will focus on how different family structures may shape child socioemotional outcomes after the experience of a divorce. This research will also analyze differences between boys and girls who experience a divorce. Quantitative data analysis of the National Survey of America’s Families (2002) and qualitative interviews will be used to explore these themes. Findings from this study will inform programs and interventions geared to help children adjust to divorce.

Jacobs, Isabelle - Major: Conservation Biology, University of Arizona
Mentor: Dr. Wendy Moore, Associate Professor, Insect Systematics Curator, University of Arizona Insect Collection, Department of Entomology
Oral Presentation Session #10, Room: Acoma A
**Title:** Polymorphisms of Parasitic Dagger-tail Bees (Hymenoptera: Megachilidae) of the Sonoran Desert Region
Abstract: Some native solitary bees are cleptoparasites of other native bees. Rather than digging her own nest and gathering pollen, a cleptoparasite stabs another bee’s nest with her abdomen, kills the larva, and lays her own egg inside. Using DNA sequence data and comparative morphology, we are studying leaf-cutting cuckoo bees, or dagger-tailed bees, classified in the genus Coelioxys Latreille. We found females have great differences in the shape of their dagger, presumably associated with differences in their parasitic ecology. According to the literature, there can be more than one female morphotype within the same species. In this study, we document and describe two female morphotypes identified as C. novomexicanus in the University of Arizona Insect Collection and discuss our efforts to reveal their evolutionary history.

Luna, Angelique - Major: Kinesiology, Our Lady of the Lake University
Mentor: Dr. Emily Sauers, Associate Professor, Department of Kinesiology
Oral Presentation Session #10, Room: Isleta
Title: Cardiometabolic risk factors of Hispanic College aged women
Abstract: Cardiovascular diseases is the number two cause of death for Hispanics in the U.S. Cardiovascular disease are closely rated with high blood pressure, diabetes, hyperlipidemia and can increase your risk for heart disease and this is closely related to obesity. The CDC stated in 2017-2018, 44.8% of Hispanics met the criteria for obesity. Current Literatures is unclear regarding, correlation between Hispanic women between the ages of 18-24 and cardiometabolic risk factors. I will be conducting quantitative and descriptive research, investigating Hispanic women between the ages of 18-24, I will measure their blood for lipid count, glucose levels and collecting their body mass index, body composition, resting heart rate, resting blood pressure and fitness measurements over a two-day testing period. Day one will be collecting preliminary measurements, anthropometrics following a 12-hour fasting period. Day two will take place 24-48 hours after day one and will include cardiorespiratory and muscular fitness testing. The research will help increase the literature to better understand the relative risk of cardiometabolic risk factors in Hispanic women between the ages of 18-24.

Rivera-Camacho, Gabriel A. - Major: Biology, Inter American University of Puerto Rico
Mentor: Prof. Miguel Angel Rodriguez Montalvo M.S., STEM Coordinator Ronald E. McNair Program, Department of Science and Technology
Oral Presentation Session #10, Room: Lobo A
Title: Determination of the Normalized Difference Vegetation Index (NDVI) and the Differences in Vegetation Density in a Period from January 2017 to March 2022 at the Antonio Luchetti Dam Watershed in the Municipality of Yauco, Puerto Rico
Abstract: The Antonio Luchetti Dam is located in the town of Yauco, Puerto Rico. The Dam provides water for irrigation in the Lajas Valley. Also provides water for several towns. The objective of this research is to estimate the changes of the vegetation density of the Watershed of the Luchetti Dam during the period of January 2017 to March 2022. The hypothesis of this investigation is, there are changes in the areas of the vegetation density and the Normalized Difference Vegetation Index (NDVI) values during the period of January 2017 to March 2022. To estimate the NDVI, we used the satellite images of the LanSat 8 Satellite. Only cloud free images are used. The NDVI
and the area was estimated using the QGIS 3.28.3 and excel software. During the period between January 2017 and March 2022; the area of the sparse vegetation (NDVI 0.20 – 0.40) increased in 2.7585 Km2. The Vegetation of moderate density (NDVI 0.40-0.50) have a moderate increase of 0.1692 Km2. The dense vegetation (NDVI 0.50 – 1.0) shows a decrease of 2.7765 Km2. Our results suggest a decrease of the dense vegetation area of the Antonio Luchetti Dam Watershed.

Romero, Celeste - Major: History, New Mexico State University
Mentor: Dr. Kenneth Hammond, Professor and Academic Department Head, Department of History
Oral Presentation Session #10, Room: Santa Ana B
Title: A Tradition of Underground Student Newspapers at New Mexico State University
Abstract: During the blossoming of a countercultural student movement in the late 1960s, American college students used underground newspapers to voice their perspectives. At New Mexico State University, underground publications from this period such as The Conscience, Banned, and The American Revolution were met with censorship from administrators, leading the school to face legal challenge. The attention drawn by these newspapers helped to spur a change in several controversial university policies. Over the subsequent decades, later publications such as Anomic and the Ground-Up have played similar roles. This presentation will describe the decades long history of underground publishing at NMSU and its role in pushing boundaries, challenging university policies and drawing attention to the importance of freedom of expression for the school’s student body.

Silva, Jacob - Major: Criminology and Psychology, St. Mary’s University
Mentor: Dr. Colton L. Daniels, Assistant Professor, Department of Criminal Justice and Criminology
Oral Presentation Session #10, Room: Fiesta A
Title: Effects of crime: How knowing victims of violent crime may result in mental decline
Abstract: Fear of crime and perceived neighborhood disorder as a result of criminal behavior, either directly or indirectly, is important to research due to their association with mental disorders like anxiety and PTSD which affect over a million Americans yearly. Research has identified linkages between victimization with fear of crime and perceived neighborhood disorder; exploration of how members of the community respond to violent crime occurring is warranted due to limited research. Results come from the Nashville Stress and Health Study (n = 1,252), which ascertained the stress and health status of predominantly African Americans and White Americans from Davidson County. Results yielded through negative binomial regression indicated a significant relationship between fear of crime and knowing someone who was shot, as well as fear of crime and knowing someone who was raped. Additionally, a significant relationship was identified between perceived neighborhood disorder and knowing someone who was shot, perceived neighborhood disorder and knowing someone who was killed, as well as perceived neighborhood disorder and knowing someone who was raped. This study provides insight into the way members of the community respond to
violent crimes that occur in their proximity. Research implications, study limitations, and directions for future research are discussed.

**Sogah, Gifty** - Major: Psychology, University of North Georgia
Mentor: Dr. Bryan Dawson, Professor, Department of Psychology at the University of North Georgia
Oral Presentation Session #10, Room: Fiesta B
**Title:** A research proposal on the effects of microaggression on self-esteem in Black students
**Abstract:** The term “microaggressions” was coined in the 1970s by Chester Pierce to describe the subtle racial insults and discrimination that Black people experienced from White people. However, the term was only brought back into public awareness in 2007 due to the extensive research conducted by psychologist Derald Wing Sue who is a prolific voice on the psychology of racism. The issue of microaggression has become a painfully prominent and noticeable aspect of my undergraduate years because I attend a predominantly white campus. Given my personal experiences with microaggression on a campus that lacked diversity, I wanted to understand and bring awareness to how Black students are navigating these daily insults and offensive remarks or actions from their White peers and faculty. This research will analyze and compare the experiences of black students that attend a predominantly white campus vs a non-predominantly white campus through group interview sessions. The purpose of this study is to explore how microaggressions permeate the daily life of Black students and the effects they have on their psychological health.

**Villegas, Antonio** - Major: Psychology & Philosophy, University of New Mexico
Mentor: Dr. Tania Reynolds, Assistant Professor, Psychology Department
Oral Presentation Session #10, Room: Santa Ana A
**Title:** Predicting Political Polarization: Parasocial Relationship Between Alternative and Legacy News
**Abstract:** Parasocial relationships (PSR) are the conscious and unconscious perceived relationships viewers develop with media figures. In this project, I plan to examine how the parasocial relationships people naturally develop with media figures relate to political polarization. Specifically, this project will examine the differences in PSRs created by legacy and alternative news and how they influence polarization. This project will use a online self-report survey hosted on Amazon's Mechanical Turk comprised of questions examining participants’ favored news sources, their perceptions of the polarization of those sources, and their perceptions of the sources as mainstream vs alternative. The survey will also measure participants’ perceived polarization and attitudinal polarization as they relate to partisan identity. The survey will use standard polarization, political partisan, and parasocial relationship scales. These measures will be used to test the hypothesis that participants who form PSRs with a media figure will also show more affective and perceived polarization themselves. The secondary hypothesis predicts that PSRs with alternative news sources will correspond to more polarization than PSRs with legacy news sources. This project will contribute a better understanding of the connection between news choice, PSRs, and political polarization.
Arenas, Destiny - Major: Biology, Our Lady of the Lake University
Mentor: Dr. Pei Wang, Associate Professor, Department of Cell Systems and Anatomy
Oral Presentation Session #11, Room: Isleta
Title: Identification of SEMA3A and AREG as early pancreatic cancer markers
Abstract: Objective: Validate whether the candidate genes express in human PDAC. Pancreatic ductal adenocarcinoma (PDAC) is a lethal cancer with a 5-year survival barely reaching 12%. If diagnosed at an early localized stage, the survival rate can reach 40%. Our lab has established a novel model to generate human PDAC cells from normal human pancreatic exocrine tissue by adding the most common pancreatic mutations (KRAS, p16, TP53, and SMAD4) that can form tumors in xenograft mice models. We performed RNA-seq analysis on different stages of cells and identified a list of candidate genes which have the potential to serve as markers for early diagnosis or treatment. Of these genes, four were chosen for further analysis: VCAN, SEMA3A, AREG, and SNCG. Immunohistochemistry staining was performed on engineered KPTS pancreatic tumors (originated from ductal and acinar lineages, respectively), and human patient pancreatic tumor with adjacent normal pancreas tissue. In the engineered acinar and ductal tumors, SEMA3A, AREG, and SNCG stained positively in the epithelial cells, while VCAN stained positively in the stromal cells. In the human patient samples, SEMA3A and AREG stained positively in the tumor epithelial cells, but not in adjacent normal tissues. SEMA3A and AREG are indeed upregulated in PDAC, potentially representing early markers for pancreatic cancer.

Burleson, Johnathon - Major: Molecular Biology, East Central University
Mentor: Andrew Duncan, Professor, Department of Biological and Environmental Sciences
Oral Presentation Session #11, Room: Acoma A
Title: Histology Of Kidneys From Bulldogs Afflicted With Fetal Hydrops.
Abstract: Fetal hydrops is a condition where large amounts of fluid pool in multiple places around the body. It often leads to serious birth complications and is usually fatal. It is relatively common, with 1 in every 1700 births being afflicted by fetal hydrops. We are using bulldogs as a model organism to study this condition because brachycephalic breeds exhibit higher rates of fetal hydrops. Necropsies were performed on puppies who succumbed to fetal hydrops. Multiple organs were harvested, and the kidneys were specially collected for further study. Standard histological techniques were performed to obtain an H&E-stained cross-section of the kidneys for histological identification. This study is also the first histological investigation for the lab and therefore required the establishment of proper technique. After confirming the proper technique and obtaining viable slides, we were able to draw some qualitative conclusions. One puppy seemed to present with low corticomedullary differentiation, a condition that was previously described via ultrasound. Our next steps will be to obtain more samples, as well as find a more reliable method of grossing our samples for more consistent results.

Lopez, Francine - Major: Sociology, University of New Mexico
Mentor: Dr. Noah Painter Davis, Associate Professor, Department of Sociology and Criminology
Oral Presentation Session #11, Room: Santa Ana A
**Title:** Productive Communication and Criminal Legal System Reform  
**Abstract:** According to the New Mexico Department of Public Safety, there were a total of 57,936 arrests made in New Mexico in 2020. The United States has the highest incarceration rate globally, with over 2 million incarcerated people. This issue disproportionately affects communities of color and those from low-income backgrounds; it also has significant economic and social costs, including a negative impact on families and communities. While there is a growing agreement that the criminal justice system needs reform, there are differing opinions on the best approaches to take. This research will evaluate moral psychology's role in understanding criminal legal system reform efforts by groups that are politically divided by the issue. Understanding the moral foundations of criminal legal system reform can help people communicate more productively by giving them a framework to know how to frame arguments in a way that resonates with people's values. My current research methods include reviewing criminological, moral psychology, and communication literature. My future research will involve interviewing public health and safety officials, creating survey questions, and coding data from these interviews and surveys. This research will contribute to the field of criminology with further implications in moral psychology and communication.

**Nartey, Priscilla** - Major: Criminal Justice and Psychology, Grand Valley State University  
Mentor: Dr. Jennifer Marson-Reed, Professor, School of Criminal Justice and Criminology  
Oral Presentation Session #11, Room: Acoma B  
**Title:** Oral Presentation  
**Abstract:** Current crime documentaries are often criticized for romanticizing and glorifying some of the world's most prolific serial killers. This study attempts to better understand this trend by conducting a content analysis of TikTok and Twitter, specifically focusing on how the crime is portrayed by streaming services and how the specific crime committed affects how it is perceived by the public. The vast number of public profiles examined in this study will be derived from posts that are generated by three different crime documentaries. Performing a scope review of TikTok and Twitter using keywords about specific documentaries (e.g., Dahmer, Green River Killer, and Mindhunter) for review of the content displayed by each post allows this study to assess the types of trends occurring on social media. Additionally, this study examines whether gender and race play a factor in determining which demographic feeds into trends and encourages them. Further studies can investigate how the emerging trends in crime documentaries affect the families of victims and the victims themselves.  
**Keywords:** crime, trends, social media, content analysis, documentaries

**Ponce, Gabriella** - Major: Animal Science emphasis on Production, University of Idaho
Oral Presentation Abstracts Listed by Session #
Thursday, September 7, 2023
Location: SUB Top Floor Rooms

Mentor: Dr. Pedram Rezamand, Professor, Department of Animal, Veterinary, and Food Sciences
Oral Presentation Session #11, Room: Luminaria

Title: A Burning Issue: Effects of Wildfire-PM 2.5 Exposure on Dairy Heifer Calves In-utero

Abstract: Increased wildfire activity has led to greater smoke production, which contains emissions hazardous to health, like particulate matter (PM2.5). While the inhalation of wildfire-PM2.5 is known to harm human health, the effects on livestock are not well-known. We previously found that wildfire-PM2.5 affects dairy cattle immunity and metabolism. However, the effects of wildfire-PM2.5 on calves in-utero are unknown. To investigate this, we monitored calves exposed to wildfire-PM2.5 in-utero (WFS, n=17) every two weeks from birth to seven months and compared them to calves not exposed to wildfire-PM2.5 in-utero (CON, n=26). We measured growth, health scores, and physiology, and collected blood to measure plasma cortisol. Statistical analysis was performed in SAS. Birth variables were compared using two-sample t-tests, and the effect of time, treatment, and their interactions were assessed in all variables using mixed models. WFS were born smaller, but grew faster than CON calves (all P<0.03). Heart rate was higher at birth in WFS calves (P<0.01). Fecal, naval, and eye scores were greater in WFS calves at two weeks (all P<0.05). No difference was detected between treatments on birth cortisol concentrations. Results show wildfire exposure in utero affects calf growth and health, which could impact their performance later in life.

Saldana, Frankie - Major: Social Work, Our Lady of the Lake University
Mentor: Dr. Alicia Hawley-Bernardez, Assistant Professor, Social Work
Oral Presentation Session #11, Room: Fiesta A

Title: Recidivism; The Hispanic Male Experience.

Abstract: In the United States, 600,000 inmates are released back into society with majority being released to parole or some type of supervised probation (Incarceration & Reentry. 2023). This research is aimed better understand the lived experiences of Hispanic men in Texas who have been processed by the criminal justice system. This research looks at recidivism and approaches that are being used by the criminal justice system and if this is consistent with the experiences of Hispanic men in Texas.

Understanding the experiences of Hispanic men who are 18 years or older, who have served in jail or prison for more than 30 days, and who have offenses related to violence, drugs or theft will guide social workers in making programming that is framed around pathways that work for this population. These experiences can help guide or create ideas and programs to help others stop reoffending to ultimately reduce recidivism within the community of Bexar County and other counties in Texas. By using a qualitative research approach, the researcher will look for patterns and themes from the data collected.
Shabazz, Kwameisha - Major: Psychology, Iona University
Mentor: Nilofer Naqvi, Ph.D, Associate Professor, Department of Psychology
Oral Presentation Session #11, Room: Santa Ana B
**Title:** Elevating Autism Knowledge: Teacher Training in Karachi, Pakistan
**Abstract:** Autism is a developmental disorder affecting individuals worldwide. However there are global disparities in autism knowledge impacting access to services. This is true among teachers particularly in low resource settings. In Pakistan there is a need to increase the autism knowledge of teachers (Ayub et al., 2017). This presentation reports on a three-day autism knowledge training in Karachi, Pakistan. Ninety-two teachers from private and government schools attended and topics included etiology, assessment, and teaching strategies. Scores on a measure of autism knowledge, the Autism Stigma and Knowledge Questionnaire (ASK-Q) indicated a medium to large effect size of the training on teacher knowledge with significantly greater scores at post-test. This supports the positive impact of a short training in improving teacher knowledge in one city in Pakistan.

Vazquez, Eric - Major: Aerospace Engineering, University of Arizona
Mentor: Dr. Jekan Thanga, Associate Professor, Aerospace and Mechanical Engineering
Oral Presentation Session #11, Room: Lobo A
**Title:** Smart Breadcrumbs for Extreme Environment Exploration On The Moon and Mars
**Abstract:** Efforts are being made to explore extreme environments on the Moon and Mars for applications ranging from searching for life to finding new shelters for humanity. The environments include caves, canyons, cliffs, chasms, and crater rims; some offer natural shielding from hostile surface conditions such as micrometeorite impacts, radiation and extreme temperature swings. Current landers and rovers are unable to access these extreme areas due to limitations in their mobility over such tough terrain. Past work on a spherical rover called SphereX, developed at The University of Arizona, shows promise utilizing unconventional hopping mobility to traverse these environments. In this project we propose a “smart” breadcrumb device that will be the size of a credit card and used to aid the rovers during exploration missions. The breadcrumbs will be tactically deployed to enable efficient techniques of exploring the most extreme environments by creating self-sustaining communication and power networks during missions. Optimizing the rover’s ability to transfer data, communication, and power to inaccessible regions will offset the high cost and risk that normally writes off these more rewarding missions. With this work we intend to evaluate if “smart” breadcrumbs can provide a new leap in exploration capabilities.

Addotte-Wayo, Theophilus - Major: Biology, Augsburg University
Mentor: Dr. Matthew L. Beckman, Associate Professor and Chair, Biology Department
Oral Presentation Session #12, Room: Acoma A
**Title:** Measuring Six3 Gene Expression Across Multiple Stages of Eye Development In Daphnia magna.
Abstract: Daphnia magna, is a significant model freshwater crustacean used in ecological, toxicological, developmental, and evolutionary biology research. Our work is focused on investigating its eye development and the role the Six3 gene plays in the development of cyclopia. This study aimed to measure Six3 gene expression at four eye developmental stages in Daphnia magna to uncover the molecular mechanisms behind cyclopic eye formation. Previous research revealed a decline in hedgehog gene expression preceding eye formation. In this study we used qRT-PCR which shows a similar decline in Six3 gene expression during the four developmental stages, spanning early embryo to adult. We are currently performing RNAseq experiments to gain a broader understanding of gene expression changes during the development of cyclopia in Daphnia magna.

Cordova, Giovanni - Major: Mechanical Engineering, University of New Mexico
Mentor: Dr. Rafael Fierro, Professor, Electrical Engineering
Oral Presentation Session #12, Room: Lobo A
Title: Autonomous Robotic Manipulation of Orbital Replacement Units for Satellite Servicing
Abstract: The future of satellite technology and space exploration necessitates the development of advanced robotic systems capable of effectively and autonomously replacing orbital replacement units (ORUs). This research explores the application of deep reinforcement learning (DRL) to train a robotic agent in the manipulation of ORUs within a zero-gravity environment, specifically targeting satellite servicing and assembly tasks. The study aims to bridge the gap between human and robotic in-space manipulation, contribute to sustainable space development, and advance the fields of artificial intelligence and control systems. These findings hold significant implications for the future of satellite technology and space exploration. Furthermore, this research aligns with the principles of sustainable space development, envisioning a future where robotic agents autonomously perform satellite ORU replacements, reducing the need for resource-intensive launch missions and allowing spacecrafts the ability to upgrade their hardware over time. As space exploration continues to evolve over the next 100 years, the development of capable and intelligent robotic agents will play a pivotal role in expanding our understanding of the universe and facilitating sustainable space activities.

King, Nicholas - Major: Business Management, Iona University
Mentor: Christine Hardigree, Professor, Education
Oral Presentation Session #12, Room: Santa Ana B
Abstract: The purpose of this project is to show how publishing companies have profited from the Common Core State Standards recommended text exemplars. Data included the named recommended texts from the CCSS Appendix B. Prices of each text were located on various publishing websites. Data was collected in an Excel sheet and descriptive statistics (mean, median, mode, and range) were calculated. Preliminary
findings show that certain publishing houses had a greater presence among the recommended texts. Issues to be explored include the range of prices of the texts across publishing and distribution options. Implications of these findings are that certain publishers are dominant in providing recommended texts from the CCSS. This raises questions about the intentions of schools and their relations with certain publishing companies. Concerns may be that schools economically rather than entirely adhere to the betterment of student's education.

**Luna Falcon, Pablo** - Major: Mechanical Engineering, University of Arizona  
Mentor: Dr. Carlos Portela, d'Arbeloff Career Development Assistant Professor, Department of Mechanical Engineering at Massachusetts Institute of Technology  
Oral Presentation Session #12, Room: Luminaria  
**Title:** Scalable Fabrication Strategy for Self-Assembled 3D Architected Materials  
**Abstract:** Architected materials derive their properties through precisely engineered microstructures. The periodic nature of conventional structures limits scalability due to their reliance on additive manufacturing for fabrication. Considering this, a naturally occurring phase separation process, spinodal decomposition, was shown to produce non-periodic doubly curved microstructures which have been shown to surpass the mechanical performance of conventional architected materials. Although spinodal structures show promising scalability, little work has been done exploring large-scale manufacturing. To this end, we proposed a self-assembly based fabrication technique to produce spinodal architectures at scale. We designed a mold to understand the relationship between sample thickness and uniform microstructure. Our result showed promising spinodal structures, but further heat transfer analysis is needed to bridge the gap between self-assembled structures and theoretical data.

**Rodriguez, Ana** - Major: Psychology, St. Edward's University  
Mentor: Dr. Adam McCormick, Associate Professor, School of Behavioral Sciences  
Oral Presentation Session #12, Room: Acoma B  
**Title:** Emotional Labor in Parental Relationships and its Effects on College Student’s Mental Health  
**Abstract:** Emotional labor, in terms of relationships, is the emotional workload used to upkeep and maintain a healthy connection with another person. Unfortunately, there is not currently a lot of research on how emotional labor affects one’s general well-being. Romantic relationships have been heavily studied however, other relationships, such as familial ones have not. This study aimed to research both of these facets of emotional labor by conducting an online survey. This was a correlational design that surveyed students from a small liberal arts college in Central Texas. The purpose of this survey was to measure how much of a correlation, if any, there is between college student’s mental health and emotional labor in parental relationships. The survey provided participants with ten statements about their relationship with a caregiver/parental figure and then asked participants to rank to what degree they agreed with these statements using the Likert Scale. Then the survey provided ten statements from the Depression Anxiety Stress Scale (DASS) and asked to rank those statements similarly. These questions provided a general overview of participants' emotional labor in
parental/caregiver relationships and general mental health. It was hypothesized that there will be a strong negative correlation between one's emotional labor in parental relationships and their score on the DASS.

Roig, Jessica - Major: Sociology & Political Science, Colorado State University
Mentor: Dr. Tara Opsal, Associate Professor & Director of Undergraduate Studies, Department of Sociology
Oral Presentation Session #12, Room: Santa Ana A
Title: Justice-Involved Women in Community Corrections: A Literature Evaluation
Abstract: An increase in mass supervision within recent decades has sparked a conversation about women’s needs in community supervision programs. Women in community corrections face more significant barriers to completion and reentry than men. This new wave in feminist criminology and the gendered pathway perspective has increased the research needed to find ways that best contribute to women’s outcomes in community corrections. However, there remains a lack of understanding about the intersectional identities women hold in community corrections settings. This literature evaluation aims to understand justice-involved women’s experiences in community corrections. This essay also examines the gaps in the current research involving intersectional criminology, adverse childhood experiences, technical violations, punitive treatment programs and their success rates, and women’s barriers throughout the criminal justice system, suggesting further research needs.

Sandoval, Stephanie - Major: Communication Sciences and Disorders, Our Lady of The Lake University
Mentor: Dr. Elena Plante, Professor, University of Arizona, Department of Speech Language and Hearing Sciences
Oral Presentation Session #12, Room: Isleta
Title: Diagnostic Accuracy of the Structured Photographic Elicited Language Test: Fourth Edition (SPELT–4)
Abstract: The primary objective of this study was to assess the efficacy of the Structured Photographic Elicited Language Test, Fourth Edition (SPELT-4), in diagnosing impairment in preschool children. The SPELT-4 is an enhanced version of the outdated SPELT-3, now featuring prompts for each photo to facilitate language assessment. This research aimed to gather preliminary evidence regarding the classification accuracy and validity of the SPELT-4 in identifying language impairments. The study included a total of 53 children aged 4 and 5 years, who exhibited delayed language development, alongside 17 children showcasing typical language abilities. The preliminary results revealed promising outcomes for 4-year-olds, where the sample demonstrated remarkable sensitivity and specificity rates of 100% when utilizing a cut-off standard score of 19. Similarly, for 5-year-olds, the sample displayed notable sensitivity (92%) and specificity (82%) when employing a cut-off standard score of 25. These findings offer early support for the efficacy of the SPELT-4 as a valuable tool in distinguishing between children with typical language skills and those experiencing delayed language development. While ongoing updates for the SPELT-4 are underway
due to limited participation from children with typical language development, the data indicates significant progress, paving the way for future approval.