2025 UCLA NATIONAL McNAIR CONFERENCE

MONDAY, JULY 28 - WEDNESDAY, JULY 30

A forum for McNair Scholars to present their research, prepare for graduate school, and connect with each other

PROGRAM

For more information, please visit:
mcnair.aap.ucla.edu

BROUGHT TO YOU BY:

UCLA Undergraduate Education
Academic Advancement Program

TRiO UCLA Division of Graduate Education

WELCOME

2025 UCLA NATIONAL McNAIR CONFERENCE

On behalf of the UCLA McNair Research Scholars Program, the Academic Advancement Program in the Division of Undergraduate Education, and Graduate Division, welcome to the 2025 UCLA National McNair Conference. We are honored to host over 400 McNair Scholars, staff, and graduate school representatives from across the country representing over 60 institutions attending the Conference this year. It is our seventh year hosting the national conference.

Scholars, you will have the opportunity to present your research in sessions with fellow McNair scholars. We hope that you introduce yourself and network with the over 40 graduate school recruiters and sponsors in attendance. There are also graduate school preparation workshops on funding and writing strong statements of purpose. Most importantly, connect with fellow McNair scholars from all across the country over the three-day conference. Program directors and staff, we are honored by your presence and grateful you have chosen to join us at UCLA. We hope that you enjoy your stay and are able to connect with McNair colleagues from other institutions and exchange ideas while supporting all the scholars.

Conference sponsors, thank you for your contributions and hosting students at the networking breakfast. To the faculty, panelists, recruiters, and workshop presenters who make this conference experience memorable, we greatly appreciate your time and participation. Your presence and interest in these young scholars as they prepare for graduate school are invaluable. We hope that you can explore and chat with all of the recruiters. Please enjoy the conference, UCLA campus, and the great city of angels!

ABOUT McNAIR

DR. RONALD E. McNAIR

Dr. Ronald E. McNair was the second African American astronaut to join NASA. He was born to a family in racially segregated South Carolina and had an affinity for science and space early on in his childhood. He overcame many structural barriers to pursue his love of learning, major in Physics, and graduate magna cum laude from North Carolina A&T State University, Greensboro. Afterwards, he attended M.I.T. to attain his Ph.D. in Physics by the age of 26.

Dr. McNair was nationally recognized for his work in the field of laser physics. In addition, he received three honorary doctorates, a score of fellowships and commendations, a black belt in karate, and a reputation as an accomplished saxophonist. Dr. McNair flew his first mission as an astronaut in 1984 and was aboard the Challenger space shuttle that exploded on lift-off in January 1986. He died tragically at the age of 35.

The federal programs that carry his name seek to equip students with knowledge, courage, and an unshakable will to succeed. The program encourages first-generation, low-income, and historically underrepresented students to pursue post-baccalaureate studies specifically leading to doctoral degrees.

McNAIR RESEARCH SCHOLARS PROGRAM

Through a grant competition, funds are awarded to institutions of higher education to prepare eligible participants for doctoral studies through involvement in research and other scholarly activities. Participants are first-generation and low-income students and students historically underrepresented in graduate school who have demonstrated interest in and academic potential for doctoral programs. Institutions work closely with participants as they complete their undergraduate requirements. Institutions encourage participants to enroll in graduate programs and then track their progress through to the successful completion of advanced degrees. The goal is to increase the attainment of Ph.D. degrees by students from historically marginalized backgrounds.

All McNair projects must provide the following activities: opportunities for research or other scholarly activities; summer internships; seminars and other educational activities designed to prepare students for doctoral study; tutoring; academic counseling; and activities designed to assist students participating in the project in securing admission to and financial assistance for enrollment in graduate programs. McNair projects may also provide the following additional activities: education or counseling services designed to improve financial and economic literacy of students; mentoring programs involving faculty members at institutions of higher education or students, or any combination of such persons; and exposure to cultural events and academic programs not usually available to historically underrepresented students.

TRiO

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July 28, 2025

Dear Friends,

It is my honor and privilege to welcome you to the 2025 National McNair Conference at the University of California, Los Angeles (UCLA).

The McNair Research Scholars Program, inspired by the work of the late Dr. Ronald E. McNair, was created with a goal of motivating and supporting first-generation and low-income students. This federal TRIO initiative provides an incredible opportunity for undergraduate students to prepare themselves for doctoral studies through a combination of rigorous training, involvement in research, and additional scholarly activities. The program would not be possible without the true leadership and dedication of student scholars as they participate in their intensive project-based endeavors.

This conference provides a platform for students to experience a professional research event and to present their inquiries before an interdisciplinary community. The McNair program remains an asset to UCLA, the 36th Congressional District of California, and our nation.

Congratulations to all McNair participants and my best wishes for a successful conference.

Sincerely,

Ted W. Lieu

Ted W. Lieu

WELCOME REMARKS

ADRIANA GALVÁN, PH.D.
Dean and Vice Provost,
UCLA Division of Undergraduate Education
Professor, Psychology

Adriana Galván was appointed Dean of Undergraduate Education in July 2020. A member of the UCLA faculty since 2008, she is a professor of psychology, co-executive director of the Center for the Developing Adolescent, and director of the Developmental Neuroscience Lab at UCLA. Dean Galván's research focuses on adolescent brain development and behavior, particularly in the domains of learning, motivation, and decision-making. Galván has been actively involved in the UCLA Academic Senate, having served on the executive committee, the Committee on Undergraduate Admissions and Relations with Schools, and as chair of the Undergraduate Council.

The UCLA Division of Undergraduate Education serves as the campus-wide advocate for undergraduate education, providing leadership to achieve the highest quality of teaching and learning; it also promotes academic success for UCLA's diverse undergraduate population, ensuring options for all students to engage in a challenging array of educational opportunities, from foundational general education courses to advanced research and honors projects.

JULIO FRENK, MD, MPH, PH.D.
Chancellor
UCLA

Julio Frenk is a leading global health researcher who has held positions in government and academia, both in the U.S. and in Mexico. He became UCLA's seventh chancellor on January 1, 2025. He also holds an appointment as a distinguished professor in the Department of Health Policy and Management within the UCLA Fielding School of Public Health.

Before joining UCLA, Chancellor Frenk served as the president of the University of Miami and as dean of the Harvard T.H. Chan School of Public Health. Prior to that, as federal secretary of health of Mexico, he implemented a groundbreaking program that expanded access to healthcare to over 55 million uninsured individuals. Frenk was the founding director-general of Mexico's National Institute of Public Health and has held senior roles at the World Health Organization and the Bill and Melinda Gates Foundation.

Chancellor Frenk earned his medical degree from the National University of Mexico, as well as a Master of Public Health and a joint Ph.D. in medical care organization and in sociology from the University of Michigan. His career as a global public health researcher includes close to 200 articles in academic journals, as well as many books and book chapters, which have been cited more than 37,000 times. In addition, he has written five novels for children explaining the functions of the human body. Chancellor Frenk is a member of the American Academy of Arts and Sciences, the U.S. National Academy of Medicine, the National Academy of Medicine of Mexico and El Colegio Nacional, the most prestigious learned society in Mexico.

NETWORKING BREAKFAST WELCOME

BRIAN KITE
Dean and Vice Provost,
UCLA Division of Graduate Education
Professor, Theater

Brian Kite is the Dean and Vice Provost of Graduate Education at UCLA, where he leads the Division of Graduate Education in advancing graduate student success, expanding access to opportunities, and strengthening UCLA's global reputation as a hub for groundbreaking research and professional excellence. A dedicated advocate for graduate students, Brian is committed to ensuring they have the resources, mentorship, and support needed to thrive. Prior to his current role, he served as Dean of the UCLA School of Theater, Film and Television, where he championed interdisciplinary collaboration and student-centered initiatives. A recognized leader in higher education, Brian's work focuses on building supportive academic communities that empower students at UCLA and beyond.

KEYNOTE SPEAKER

STEPHANIE CORREA PH.D.
Associate Professor and Vice Chair of Undergraduate Education,
Integrative Biology and Physiology
UCLA

Stephanie Correa has a B.A. in biology from Pomona College and a Ph.D. in neurobiology and behavior from Cornell University. Her dissertation research with Elizabeth Adkins-Regan and Patricia Johnson tested the effects of ovarian steroids on sex determination in birds. Her postdoctoral research at Boston University Medical Center identified strain differences in the testis determination pathway in mice. Postdoctoral research with Holly Ingraham at University of California San Fransico identified neurons in the hypothalamus that regulate physical activity and body weight in female mice. Research in her lab aims to understand the effects of sex steroids on the neural circuits that control temperature and energy balance.

The Correa Lab is broadly interested in understanding the effects of sex steroid hormones on physiology. We have identified specific estrogen-sensitive neuron populations in female mice that regulate key metabolic processes such as heat generation, torpor, and feeding. These findings offer valuable insights into how estrogens impact the brain and overall body physiology. If these mechanisms also apply to humans, the neuron populations and gene targets that we have discovered in mice could potentially be leveraged to modify energy expenditure and thermoregulation without the risks associated with estrogen therapy.

Currently, we are investigating how fluctuating estrogen levels affect estrogen-sensitive regions of the hypothalamus that regulate energy intake and expenditure. Specifically, our focus is on understanding how estrogens influence signaling pathways and neural activity within these regions. We propose that estrogens simultaneously impact multiple brain regions and neural circuits to coordinate energy balance adjustments that meet the unique metabolic demands of various reproductive states.

COOL PEEPS WITH PHDS PANEL

AUSTIN COLEY, PH.D.
Assistant Professor,
Neurobiology
UCLA David Geffen School of Medicine

Austin Coley is an Assistant Professor at the University of California Los Angeles in the department of neurobiology in the David Geffen School of Medicine. His lab focuses on the neural substrates, neural population activity and synaptic properties involved in depressive-like behaviors.

He received his bachelor's degree in biology from North Carolina Central University and a master's degree in cell physiology from Case Western Reserve University. He then received his Ph.D. in neuroscience from Drexel University under the mentorship of Wen-Jun Gao studying the synaptic proteins and mechanisms involved in schizophrenia. As a postdoctoral fellow in Kay Tye's Laboratory at the Salk Institute he studied the effect of neural circuits on behavior and state-dependent and region-specific cellular aberrations implicated in neuropsychiatric conditions.

ELIZABETH GONZALEZ, PH.D.
Director, Hispanic Serving Institution
UCLA Office of the Chancellor

In 2022, Dr. Elizabeth Gonzalez took on the role as inaugural Hispanic-Serving Institution Director in UCLA's Office of the Chancellor. She has led institutional transformation efforts at the UC and California Community College systems, where she championed collaborative innovation for Latinx, low-income, and first-generation students' success.

She is a proud UC Alumni, earning her B.A. in psychology and education studies from UCLA, an M.S. and Ph.D. in psychology from UC Santa Cruz.

As a Ñuu Savi (Mixtec) migrant from Oaxaca and a first-generation college graduate, her journey reflects the promise of equal opportunity.

COOL PEEPS WITH PHDS PANEL

MARQUES VESTAL, PH.D.
Assistant Professor,
Urban Planning
UCLA Luskin School of Public Affairs

Marques Vestal is an Assistant Professor of Urban Planning and Critical Black Urbanism. He serves as a Faculty Advisor for Million Dollar Hoods, a community-driven and multidisciplinary initiative documenting the human and fiscal costs of mass incarceration in Los Angeles. He also serves as a historical consultant for the Luskin Center for History and Policy. Marques is a tenant of Los Angeles and a member of the South Central local of the Los Angeles Tenants Union.

Marques is an urban historian studying the social history of residential property in Black Los Angeles during the rebellious twentieth century. His work links property conflict—the everyday contracts, solicitations, complaints, lawsuits, and murders over property—to broader transformations of real estate, urban development, and Black liberation. He argues that this space of incessant conflict is the unwritten housing policy of the United States.

Marques' research interests are broad, but center on the twentieth-century experience of a few key political relations to land: property, housing insecurity, municipal incapacity, and racial capitalism. Having witnessed, archivally and firsthand, the violence of Los Angeles' rental housing markets, he is dedicated to projects that advance social housing and horizontal tenant governance.

IRIS LUCERO, PH.D.
MODERATOR
Assistant Director,
McNair Research Scholars Program
UCLA

Iris Lucero (she/her/ella) is a proud immigrant from Puebla, Mexico, and a first-generation Latina/Chicana whose pathway to higher education began at community college. She transferred to UCLA, where she earned a B.A. in Gender Studies and both an M.A. and Ph.D. from the Graduate School of Education, with a concentration in Race and Ethnic Studies. Her commitment to education is deeply rooted in her own experiences as a first-generation, non-traditional transfer student navigating the various sectors of higher education.

An alumna of the UCLA McNair Scholars Program, Iris now serves as the program's Assistant Director. She is dedicated to supporting the graduate school aspirations of first-generation students through mentorship. With nearly 20 years of experience developing and coordinating college, graduate, and career readiness programs, she is passionate about uplifting the next generation of brilliant scholars as they pursue their academic and professional goals.

Iris is also the proud mother of her 7-year-old son, Xavier.

GRADUATE WORKSHOPS

GRADUATE WORKSHOPS

FINANCING YOUR GRADUATE EDUCATION

Tuesday, July 29 | 9:30 - 10:30 AM PDT

Ross Fenimore, PH.D.
Senior Fellowships Officer, Office of Fellowships and Financial Services, UCLA Division of Graduate Education

Jane Sin
Senior Fellowships Officer, Office of Fellowships and Financial Services, UCLA Division of Graduate Education

Before you say yes to that student loan, attend this session to find out other ways to finance your graduate education. From fellowships to grants and everything in between, learn how to seek out funding opportunities to support your graduate education. This session will focus on the resources available to finance your graduate education. Special emphasis will be placed on campus-based and external fellowship support available as students advance in their graduate programs. Included in this workshop are ways in which students can effectively negotiate their financial awards and options available at the application stage of the graduate experience.

WRITING A POWERFUL STATEMENT OF PURPOSE

Tuesday, July 29 | 2:45 - 3:45 PM PDT

Marissa López, PH.D.
Associate Dean, Office of Diversity, Inclusion and Admissions, UCLA Division of Graduate Education
Professor, UCLA Department of English
Professor, UCLA Department of Chicana/o Studies

Kimberly Terrill, PH.D.
Associate Director,
Career Education and Development, UCLA Career Center

The statement of purpose is one of the most important aspects of your graduate school application. It tells the admission committee who you are, why you're applying, why you're a good candidate, and what you want to do in the future. This workshop will address the process of creating and improving a statement of purpose. More specifically, participants will learn how to write a strong and effective statement of purpose for graduate school admission. Topics of discussion include statement formatting, content, language, and content guidelines.

UCLA Career Center

UCLA Division of Graduate Education

SPONSORS

SPONSORS | LOCATION: PRE-FUNCTION AREA

UNIVERSITY OR ORGANIZATION NAME	DEPARTMENT OR PROGRAM
Case Western Reserve University	Mandel School of Applied Social Sciences Admissions
Cornell University	Graduate School
University at Albany, SUNY	The Graduate School
University of California, Los Angeles	Division of Graduate Education
University of California, Merced	Graduate Division
University of Minnesota	Department of Earth & Environmental Sciences
University of Pittsburgh	Graduate Studies
University of Rochester	Arts, Sciences, and Engineering Programs
University of St. Augustine for Health Sciences	Health Sciences
University of Wisconsin - Milwaukee	Graduate School

GRADUATE SCHOOL FAIR

RECRUITERS | LOCATION: CENTENNIAL BALLROOM

UNIVERSITY OR ORGANIZATION NAME	DEPARTMENT OR PROGRAM
Arizona State University	Public Service and Community Solutions
Boston College	Graduate School of Arts & Sciences
Columbia University	Mailman School of Public Health
Drexel University	Drexel University
Illinois Tech	Enrollment Management and Student Services
John Hopkins University	Bloomberg School of Public Health Office of Inclusion, Diversity, Anti-Racism, Equity
John Hopkins University	Krieger School of Arts & Sciences
Loyola Marymount University	Graduate Admissions
Palo Alto University	Graduate Admissions
Princeton University	The Graduate School
Rutgers University	School of Public Health
Stanford University	School of Humanities and Sciences
Tulane University	Weatherhead School of Public Health and Tropical Medicine
University of California, Los Angeles	Anderson School of Management Master of Financial Engineering
University of California, Los Angeles	Samueli School of Engineering ENGR Online Masters
University of California, Los Angeles	Fielding School of Public Health
University of California, Los Angeles	Luskin School of Public Affairs
University of California, Irvine	Graduate Division
University of Michigan	Taubman College of Architecture & Urban Planning
University of North Texas	Graduate Admissions
University of Notre Dame	The Graduate School
University of Puget Sound	Graduate Admission
University of Southern California	Leonard Davis School of Gerontology
University of Southern California	Price School of Public Policy
University of Southern California	Viterbi School of Engineering
University of Texas at Arlington	Office of Admissions
University of Wisconsin-Madison	Department of Physics
Van Andel Institute	Graduate School
Vanderbilt University	Biomedical Research Education & Training (BRET) Office
Vanderbilt University	Graduate Enrollment
Vanderbilt University	School of Engineering

UCLA McNAIR CONFERENCE

DAY 1 SCHEDULE
MONDAY, JULY 28

Unless otherwise noted, all conference programming will take place at the **UCLA Meyer & Renee Luskin Conference Center**, 425 Westwood Plaza, (855) 522-8252.

Please consult the venue maps (pages 18-20) for specific session locations.

TIME	SCHEDULE	LOCATION
8:30 am – 4:00 pm	**Registration and Check-In**	8:30 am – 12:00 pm 1st Floor: Luskin Entry Courtyard 12:00 pm - 4:00 pm - 1st Floor: Prefunction Area (in front of Centennial Ballroom)
9:00 am	**Bus loads for California Institute of Technology campus visit**	Bus Loading Zone (in front of Luskin Conference Center)
9:30 am	**Bus loads for University of Southern California campus visit**	Bus Loading Zone (in front of Luskin Conference Center)
10:00 am – 4:00 pm	**University of Southern California campus visit**	University of Southern California
	California Institute of Technology campus visit	California Institute of Technology
1:00 pm – 3:00 pm	**UCLA Campus Tour**	Meet in front of Luskin Conference Center
5:00 pm – 6:30 pm	**Welcome Reception** **The Office of Ted Lieu** *Congressman for California's 36th District* **Adriana Galván, Ph.D.** *Dean and Vice Provost of Division of Undergraduate Education* *Professor, UCLA Dept of Psychology* **Julio Frenk, MD, MPH, Ph.D.** *Chancellor* *UCLA*	1st Floor: Centennial Ballroom

** For conference WIFI connect to "Luskin_Meeting" with password "LCC2025"*

DAY 2 SCHEDULE
TUESDAY, JULY 29

UCLA McNAIR CONFERENCE

Please consult the venue maps (pages 18-20) for specific session locations.

TIME	SCHEDULE	LOCATION
8:00 am – 12:00 pm	**Registration and Check-In**	1st Floor: Prefunction Area (in front of Centennial Ballroom)
8:00 am – 9:15 am	**Keynote and Breakfast** **Stephanie Correa, Ph.D.** *Associate Professor,* *Integrative Biology and Physiology, UCLA*	1st Floor: Centennial Ballroom
9:30 am – 10:30 am	**Breakout Session I** Oral Presentations	*[Floor: Room]* 1st Floor: *Pinnacle, Odyssey, Pathways, Innovation* 2nd Floor: *Catalyst, Discovery*
9:30 am – 10:30 am	**Financing Your Graduate Education Workshop** **Ross Fenimore, Ph.D.** Senior Fellowships Officer, Office of Fellowships and Financial Services UCLA Division of Graduate Education **Jane Sin** Senior Fellowships Officer, Office of Fellowships and Financial Services, UCLA Division of Graduate Education	1st Floor: Centennial Ballroom
10:00 am – 2:00 pm	**Sponsors Showcase** Recruiters representing universities & programs	1st Floor: Prefunction Area (in front of Centennial Ballroom)
10:45 am – 11:45 am	**Breakout Session II** Oral Presentations Poster Session 1	*[Floor: Room]* 1st Floor: *Pinnacle, Odyssey, Pathways, Innovation* 2nd Floor: *Catalyst, Discovery* 2nd Floor: *Optimist*
12:00 pm – 1:30 pm	**Panel and Lunch - Cool Peeps with Ph.D.s** **Austin Coley, Ph.D.** Assistant Professor, Neurobiology, UCLA David Geffen School of Medicine **Elizabeth Gonzalez, Ph.D.** Director, Hispanic-Serving Institution, UCLA **Marques Vestal, Ph.D.** Assistant Professor of Urban Planning, UCLA Luskin School of Public Affairs	1st Floor: Centennial Ballroom
1:30 pm – 2:30 pm	**Breakout Session III** Oral Presentations Poster Session 2	*[Floor: Room]* 1st Floor: *Pinnacle, Odyssey, Pathways, Innovation* 2nd Floor: *Catalyst, Discovery* 2nd Floor: *Optimist*
2:45 pm – 3:45 pm	**Writing a Powerful Statement of Purpose** **Marissa López, Ph.D.** Associate Dean, Office of Diversity, Inclusion and Admissions, UCLA Division of Graduate Education Professor, UCLA Department of English Professor, UCLA Department of Chicana/o Studies **Kimberly Terrill, Ph.D.** Associate Director, Career Education and Development, UCLA Career Center	1st Floor: *Pinnacle, Odyssey, Pathways, Innovation*
2:45 pm – 3:45 pm	**Breakout Session IV** Oral Presentations	*[Floor: Room]* 1st Floor: *Pinnacle, Odyssey, Pathways, Innovation* 2nd Floor: *Catalyst, Discovery*
4:00 pm – 5:00 pm	**Breakout Session V** Oral Presentations Poster Session 3	*[Floor: Room]* 1st Floor: *Pinnacle, Odyssey, Pathways, Innovation* 2nd Floor: *Discovery* 2nd Floor: *Optimist*
5:00 pm – 6:30 pm	**UCLA Sunset Campus Tour**	1st Floor: Front of Luskin Conference Center

** Break refreshments will be available throughout the day at various "Snack Bar" locations, see venue maps.*

UCLA McNAIR CONFERENCE

DAY 3 SCHEDULE
WEDNESDAY, JULY 30

Please consult the venue maps (pages 18-20) for specific session locations.

TIME	SCHEDULE	LOCATION
8:00 am – 9:00 am	**Networking Breakfast** Network with Conference Sponsors and Recruiters **Brian Kite** *Dean and Vice Provost of Graduate Education* *Professor, UCLA Department of Theater*	3rd floor: Centennial Terrace
9:00 am – 10:00 am	**Breakout Session VI** Oral Presentations	*[Floor: Room]* 1st Floor: *Pinnacle, Odyssey, Pathways, Innovation* 2nd Floor: *Discovery*
10:00 am – 2:00 pm	**Graduate Opportunities Fair** Recruiters representing universities & programs	1st Floor: Centennial Ballroom
10:15 am – 11:15 am	**Breakout Session VII** Oral Presentations Poster Session 4	*[Floor: Room]* 1st Floor: *Pinnacle, Odyssey, Pathways, Innovation* 2nd Floor: *Discovery* 1st Floor: *Centennial Ballroom*
11:30 am – 1:30 pm	**Lunch**	ASUCLA Campus Restaurants asucla.ucla.edu/locations – Central and South Campus Locations
1:30 pm – 2:30 pm	**Breakout Session VIII** Oral Presentations Poster Session 5	*[Floor: Room]* 1st Floor: *Pinnacle, Odyssey, Pathways, Innovation* 2nd Floor: *Discovery* 1st Floor: *Centennial Ballroom*
2:45 pm – 3:45 pm	**Breakout Session IX** Oral Presentations	*[Floor: Room]* 1st Floor: *Pinnacle, Odyssey, Pathways, Innovation*
3:45 pm – 4:00 pm	**Conference Closing** **Alice Ho, Ph.D.** Director, McNair Research Scholars Program Director, Research, Assessment and Evaluation UCLA Academic Advancement Program	1st Floor: Centennial Ballroom
5:00 – 5:30 pm	Bus loads for **Cultural Activity** *Check-in and pick up boxed dinner* *Bus boarding*	Bus Loading Zone (in front of Luskin Conference Center)
6:30 pm – 11:00 pm	**Cultural Activity** - *Sold out*	Griffith Observatory, Los Angeles, CA Report to Bus Pick-Up Zone at 10:00 pm

** Break refreshments will be available throughout the day at various "Snack Bar" locations, see venue maps.*

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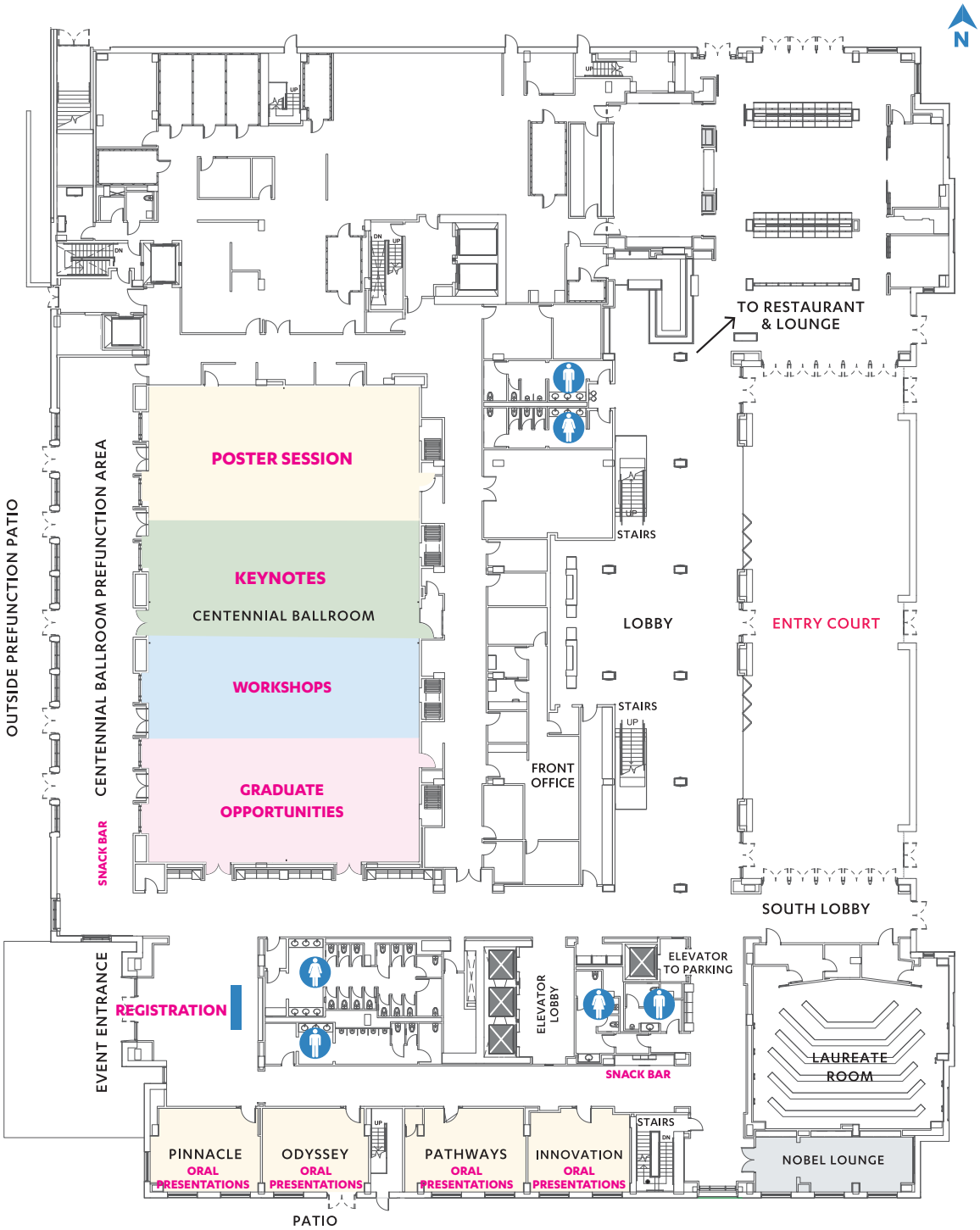
1ST FLOOR



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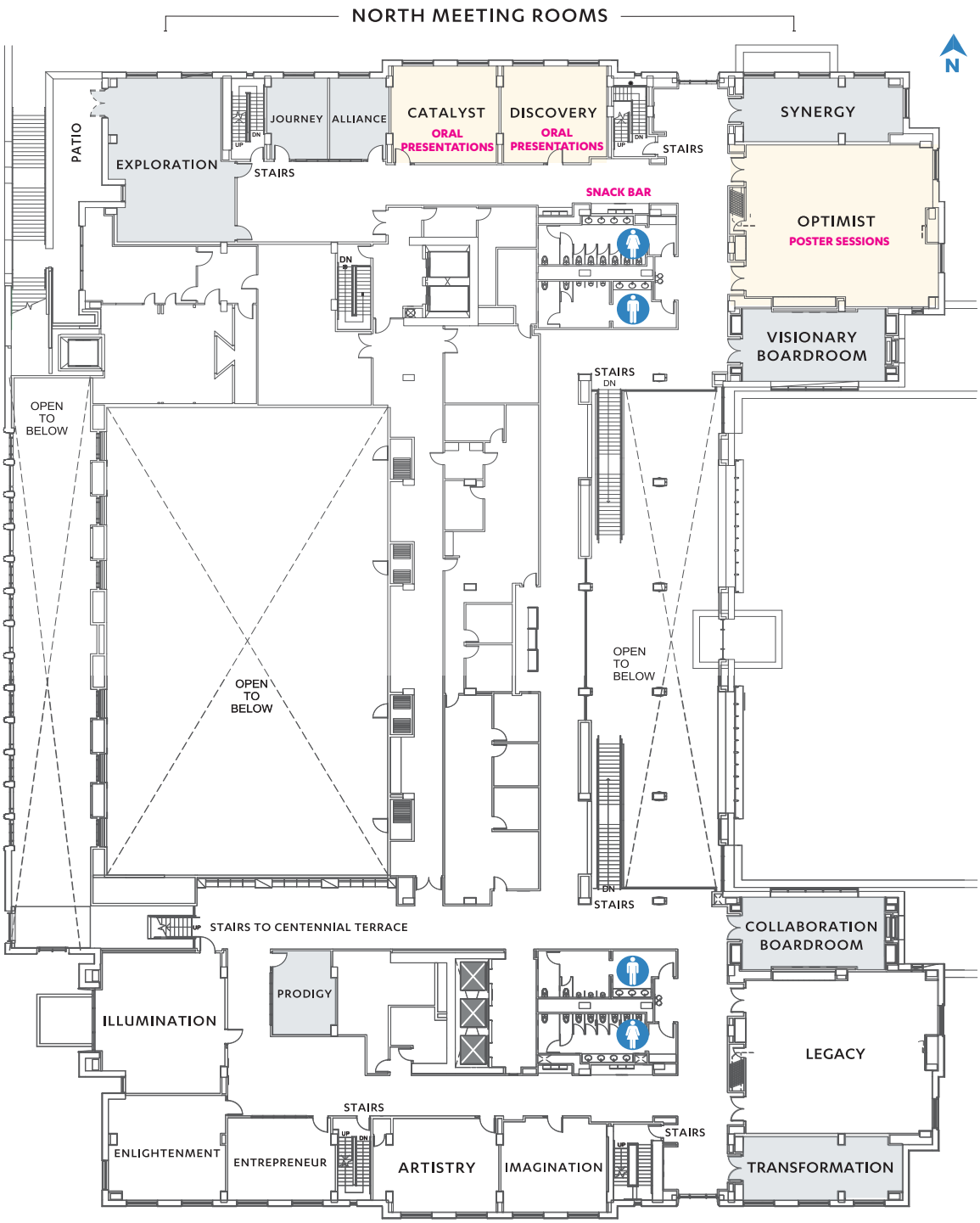

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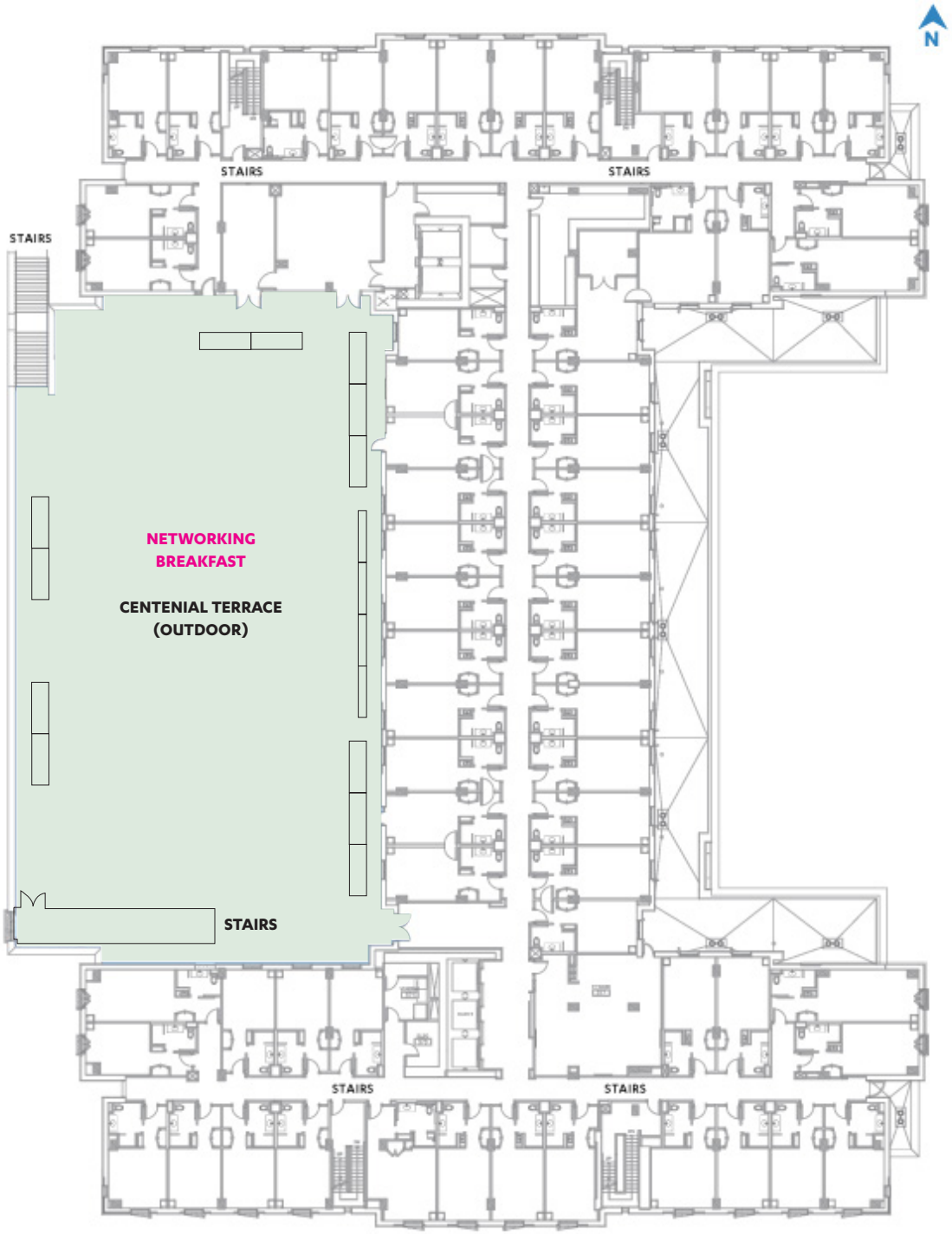
3RD FLOOR



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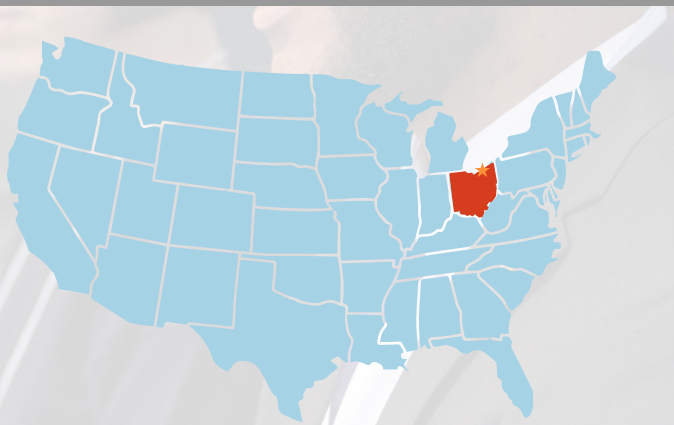

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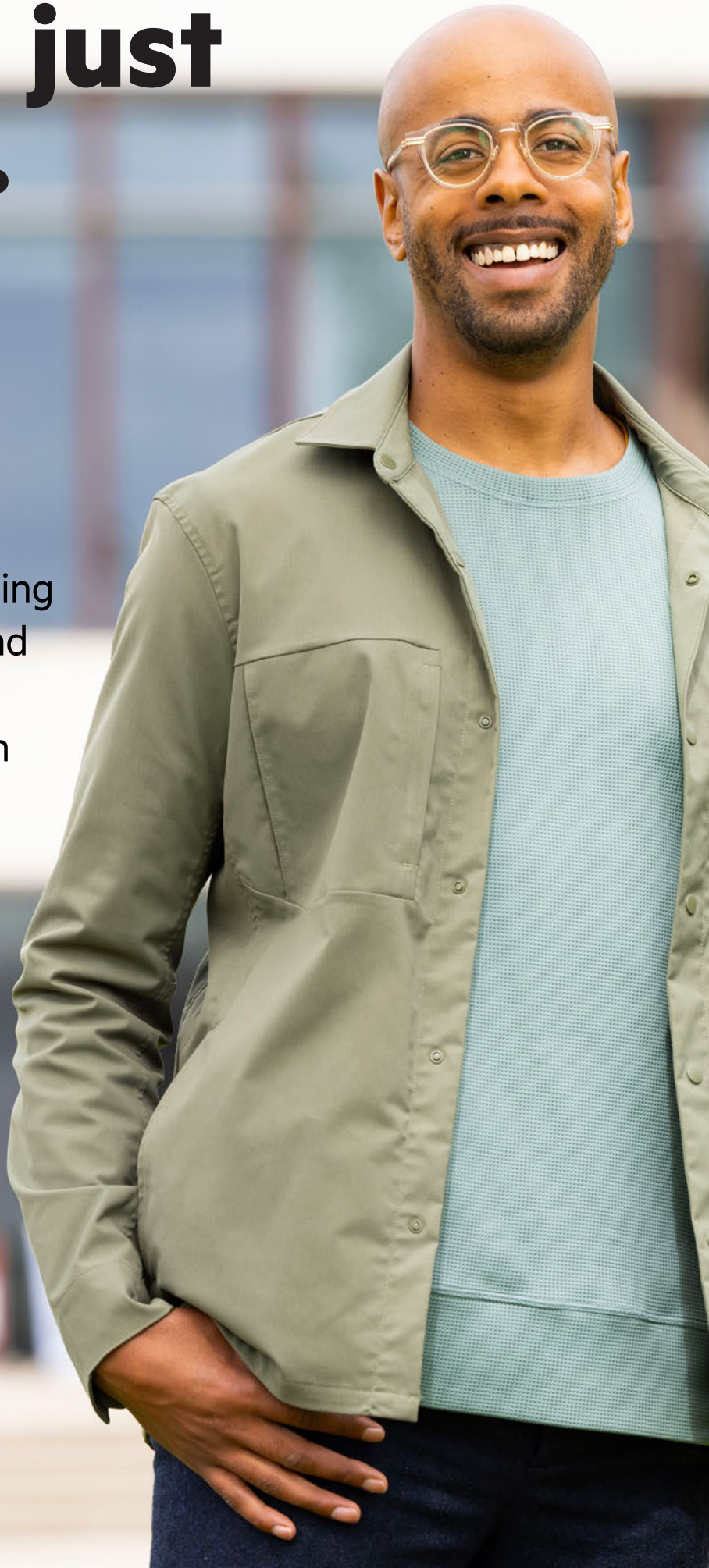

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ABSTRACTS

ORAL & POSTER PRESENTATIONS

July 29, 2025 - 9:30 AM - Atmospheric and Environmental Science Breakout I: Panel A

SHAINA CAPLAN
University of Oregon
Sediment Temperature, Seagrass Wasting Disease, and Eelgrass Productivity in Natural Zostera marina Meadows
Location: Pinnacle

The seagrass Zostera marina (eelgrass) is a foundational species which provides essential ecosystem services but is imperiled by seagrass wasting disease (SWD) caused by the pathogenic protist Labyrinthula zosterae. Previous studies indicate that warmer water temperatures facilitate SWD development, which inhibits photosynthesis and reduces growth rates and sugar reserves in eelgrass. There is also a correlation between marine heat waves and sediment heat waves, although the effects of increased sediment temperature on SWD have not been measured. Consequently, the effects of sediment temperature on L. zosterae infection in natural Z. marina meadows is the basis of our study. We are also investigating the effects of SWD on seagrass productivity, which we will determine by measuring blade growth rates and rhizome non-structural carbon concentrations. Our study involves field experiments at three Z. marina meadows located in the Coos Estuary in Oregon. Our methodology involves marking eelgrass blades in situ to determine growth rates along with rhizome collection to determine sugar concentrations. We expect that warmer sediment temperatures will be correlated with increased SWD since sediment heat waves co-occur with warmer water temperatures. We also expect that increased SWD will be associated with reduced eelgrass productivity since L. zosterae destroys plant chloroplasts and prevents photosynthesis. This is the first study to examine the effects of sediment temperature on SWD, and our findings will help inform disease mitigation and restoration efforts in eelgrass meadows in an age of intensifying harmful environmental changes to coastal ecosystems.

TATIANA RUVALCABA
St. Edward's University
Using Pandora spectrometer data to study pollution in Houston during the 2021 TRACER-AQ campaign
Location: Pinnacle

Ozone pollution in Houston regularly exceeds the National Ambient Air Quality Standards, primarily driven by reactions involving oxides of nitrogen (NOx) and volatile organic compounds (VOCs). Understanding the spatial and temporal variability of these ozone precursors is critical for improving air quality forecasting and control strategies. To evaluate the cross-platform consistency between remote sensing and in situ observations, as well as the variation in tropospheric column and near-surface concentrations of nitrogen dioxide (NO2) and formaldehyde (HCHO) between high and low ozone days in Houston during the TRACER-AQ campaign of September 2021. This study analyzes near-surface observations from the Continuous Ambient Monitoring Stations (CAMS) in comparison with vertical column and near-surface NO2 and HCHO data from Pandora spectrometers at three Houston sites. Additionally, ten NASA aircraft flight days were used to collect NO2 and HCHO data. The timing of peaks of ozone precursors and associated with peak ozone production is evaluated using diurnal patterns from the Pandora spectrometers and CAMS. It is anticipated that NO2 and HCHO concentrations will be higher in the morning on high ozone days with diurnal cycles, reflecting the timing of precursor accumulation. Pandora vertical profiles are expected to reveal a higher concentration of pollutants during ozone episodes. Statistical intercomparisons across platforms will determine measurement agreement and potential biases. This will enhance the understanding of the distribution and behavior of ozone precursors in Houston, which will provide a foundation for integrating multi platform observations to inform air quality policy and public health interventions.

BRIANA LE
University of California, Santa Barbara
Born into Intertidal Stress: How Multiple Stressors Affect Growth of the Foundation Species Silvetia compressa
Location: Pinnacle

Human-induced climate change is increasing stressors across ecosystems globally. Climate impacts on foundation species, crucial organisms in maintaining community structure, are having outsized ecological consequences. In particular, rising temperatures and intensifying weather patterns are creating temperature anomalies and changes in salinity that threaten nearshore marine ecosystems. The rocky intertidal ecosystem is exposed to numerous terrestrial and marine stressors, affected by the shifting tides. These stressors are co-occurring with climate-induced stressors, and interpreting the interactions between multiple stressors within the intertidal can contribute to understanding the strength of these combined effects. The seaweed Silvetia compressa is a foundation species in southern California intertidal communities, providing three-dimensional structures, settling substrates, and food sources for other intertidal species. Silvetia compressa is declining in California due to climate change. The early zygote stage is highly susceptible to mortality from multiple factors, such as marine heatwaves and storm runoff – which may be intensified by climate change. Our objective is to understand how temperature and salinity interact to impact the development and growth of early-stage S. compressa sporophytes. We will expose early life sporophytes to temperature and salinity conditions that mimic climate-driven stressors. We hypothesize that the interaction between temperature and salinity will synergistically affect the survival of rockweed zygotes, diminishing in response to increased temperature and decreased salinity. These results will inform restoration protocols for current conservation efforts focused on spawning and repopulating S. compressa communities in southern California.

BELEN BUSQUETS
Westminster University
Testing for Ice Nucleation in Haloarchaea Organisms from the Great Salt Lake
Location: Pinnacle

The Great Salt Lake is an ecosystem under threat. Ongoing water depletion and climate change have impacted this lake, causing it to decrease in water volume and increase in salinity, destabilizing its unique ecological balance. This project centers on the possibility of salt-thriving halophiles to serve as ice-nucleating particles (INPs) in the atmosphere, which could affect the local weather patterns and enhance precipitation. Biologically derived materials, such as microorganisms or pollen, can act as INPs, initiating freezing water droplets in clouds even at relatively high temperatures. The Great Salt Lake hosts rich and diverse haloarchaea that might have different capacities to induce Ice Nucleation. My project aims to determine if halophilic organisms can function as efficient INPs. I will do this by: 1) isolating strains of haloarchaea from the hypersaline regions of the Great Salt Lake, 2) genetically identifying isolated species by conducting PCR, 3) testing the cold resistance of selected strains, and 4) performing ice spectrometry to test for their freezing ability. Understanding the behavior of halophiles under specific environmental conditions is crucial for developing new insights about microbial interaction with clouds and its atmospheric implications. Furthermore, utilizing the already present halophiles as possible INPs may have positive impacts on the water crisis in the Western United States.

July 29, 2025 - 9:30 AM - Biology Breakout I: Panel A

JOSE BONILLA GAYTAN
University of Wisconsin - Madison
Conservation and Evolution of Ice Crawlers
Location: Odyssey

Ice crawlers are a rare group of cold specialized insects that inhabit montane areas, caves, lava tubes and canyons. These areas are typically characteristic of colder regions, which makes these environments and ice crawlers particularly vulnerable to past and present climate change. The goal of this proposal is to understand how climate change has historically affected the genetic differentiation of the ice-crawlers in the family Grylloblattidae through population genetics. Historical glacial periods have been hypothesized to have a significant effect on the biodiversity of ice crawler populations and contributed to present day levels of genetic diversity. Glacial expansion resulted in ice crawlers dispersing to higher altitudes. Due to their low vagility, isolation was prominent and is what likely resulted in the biological diversity of current Grylloblattidae populations. This study focuses on reconstructing responses of ice crawlers to glacial cycles in the vicinity of the southern Cascades Range. Samples will go through a reduced representation genome sequencing process to measure variation, estimate relationships and reconstruct demographic changes. The results will be correlated with glaciation events to understand the effects of past changes in climate on genetic diversity among ice-crawler populations. If speciation in the phylogeny aligns with historical glacial cycles with low levels of efficient dispersal, then it can be concluded that glaciations impacted the diversification of Grylloblattidae populations. Understanding historical climate effects can provide insight into ice crawler genomics and would help to make predictions about the impact of future climate change.

LISETTE OCTAVIANO-FRANCISCO
University of Washington
Neural Signal Recordings of Manduca sexta Hawkmoth Towards Multisensory Odor Discrimination
Location: Odyssey

The Manduca sexta hawkmoth, a proficient pollinator, employs its antennae to efficiently navigate its surroundings. Their antennae have highly sensitive olfactory receptor cells, providing acute odor recognition ability, which makes the moth's antennae an ideal tissue candidate for developing reliable biosensors. In contrast, commonly used portable artificial sensors are inefficient and inaccurate in chemical detection. To evaluate the moth antenna's effectiveness as a biosensor model, I assessed its neural activity longevity via an electroantennogram over 24-hour durations. I first attached an excised antenna to a circuit board to measure voltage variations across the antennal nerves during odor stimulation and establish a baseline understanding of the voltage lifespan. To increase the longevity of electrical activity, I formed a hydrogel solution to enclose the antenna, protecting it from drying out, and Leibovitz's L-15 Medium so the antenna has access to Amino Acids to continue cell and tissue growth, serving as an energy source. Preliminary findings show a tradeoff between longevity and electrical activity, where the antenna-only trials had high voltage readings over 4 hours while the hydrogel antenna had less intense electrical readings over 14 hours. The hydrogel proved to be a quality medium to preserve the antenna from dying prematurely. These results demonstrate that moth antennae are a suitable model for highly accurate and efficient biosensors, and support the feasibility of implementation in devices that detect and identify substances of interest with a longer lifespan. Future work will apply machine learning methods for enhanced chemical discrimination for disease diagnosis.

VICTORIA WILLIAMS
Fayetteville State University
Novel Hemp Pesticide Controls Poultry Beetles: Alphitobius diaperinus
Location: Odyssey

The darkling beetle (Alphitobius diaperinus), also known as the litter beetle or mealworm, is a common pest in poultry production. It infests chicken feed, transmits poultry-related diseases, and causes structural damage. Synthetic pesticides currently used in poultry houses are becoming less effective due to resistance and cannot be applied inside houses with chickens present due to their toxicity. This study aimed to evaluate the efficacy of a novel hemp-derived pesticide (NHP) as a natural alternative for controlling litter beetles at various developmental stages. While hemp has shown insecticidal and repellent properties in some insect species, limited research has investigated its biological effects on Alphitobius species or across life stages. Feeding assays were conducted to assess toxicity in larvae and adults. All stages showed susceptibility including reduction in egg hatching. Our findings support the potential of hemp as an effective, natural alternative for managing litter beetle infestations in poultry environments.

AMIN SHARIF
University of Minnesota - Twin Cities
An Inquiry into Polya's Enumeration Theorem
Location: Odyssey

Enumerative combinatorics is an area of math concerned with counting the number of distinct configurations for a set of discrete objects. Some examples of this are poker hands, configurations of chess pieces, isomers of a chemical compound, and configurations of atoms in a crystal structure. Polya's Enumeration Theorem (a.k.a Polya counting) is a powerful tool that counts the number of distinct arrangements while accounting for geometric symmetry. This research is focused on using symmetry-based counting techniques to better classify structures based on rotation and reflection. We will also discuss some applications of Polya counting, including isomer identification and information networks.

July 29, 2025 - 9:30 AM - History Breakout I: Panel A

ABIGAIL SCHMIDT
Bowling Green State University
Motherhood, Spiritualism, and Power: Unveiling Patriarchal Domination of Women and the Natural World
Location: Innovation

Through the common themes of motherhood, spiritualism, and power, Jesmyn Ward's Let Us Descend and Robin Wall Kimmerer's Braiding Sweetgrass reveal that patriarchal systems commodify and exploit women and the natural environment alike, specifically women of color in Western cultures. This project serves to reveal the inner workings of the connection between how the patriarchy treats women and the environment in similar ways due to their ascribed femininity. Through a critical analysis of the primary sources listed above along with theoretical texts by Melanie Harris on Ecowomanism, Rosemary Ruether's writings on Ecofeminism as well as Winona LaDuke's book Recovering the Sacred: The Power of Naming and Claiming it is revealed that women and nature, as well as femininity as a whole, are viewed as fragile and weak by the oppressor, which results in their similarly situated oppression through the means of exploitation, control, domination, etc. The primary literary works emphasize the importance of maternal and feminine relationships, the experience of spiritualism and knowing, as well as uncovering the oppressive powers that control the world around them. Despite being two very different texts, Braiding Sweetgrass and Let Us Descend assist in revealing why women and the environment are treated similarly through a patriarchal lens.

ANDREANELA ORDOÑEZ CARBAJAL
University of California, Los Angeles
El que no brinque es macho: Radical Care Manifestations and the State of Necropolitics in Mexico's Modern Feminist Movement
Location: Innovation

Every March 8th and November 25th, thousands of women gather throughout various cities in Mexico to protest rising rates of gender-based violence and feminicide. In these marches mothers, activists, and community members demand for justice through organizing, mobilizing, and enacting radical care. The radical care practices utilized in these political spaces are able to then support activists' communities and fight against systematic violence. Through this project I aim to understand the role of radical care and how systemic violence manifests in these marches and their impact on activists in Tijuana, Mexico. I am investigating the following questions: How do radical care practices manifest in Tijuana Mexico's annual 8M & 25N marches? How does the state of Mexico perpetuate tactics of systemic violence toward the women in these marches? How does practicing radical care affect leaders in the Mexican Feminist movement? How does systemic violence affect leaders in the Mexican Feminist movement? Through a qualitative study, I am using community-based ethnography to shed light on these women's stories. Concurrently, I am creating a zine featuring mixed media art that conveys the project's findings. In understanding activists' self-valorization via direct action we are able to better comprehend the value of radical care acts for advancing womens' rights in Mexico. This research aids in giving care and resources to the women who have been at the forefront of this decades long movement.

CASSANDRA CARDENAS
University of Texas at Austin
San Francisco Answers "The Call": Black Women's Clubs' Activism at the 1915 Panama-Pacific International Exposition
Location: Innovation

The early 20th century was marked by heightened racial tensions and anxieties surrounding American identity, culminating in San Francisco's selection as the host city for the 1915 Panama-Pacific International Exposition (PPIE). While the fair aimed to showcase national progress and Western civilization, it also reinforced exclusionary ideologies through its "Joy Zone" and "Race Betterment" exhibits, further marginalizing communities of color. In this context, African American women's clubs emerged as critical vehicles for community uplift and civic participation. Building on the legacy of activism shaped by the 1893 World's Columbian Exposition in Chicago, this project explores how Black women in the Bay Area carried out racial uplift through their use of local networks. Drawing from newspapers, letters, and organizational documents, I analyze how Black clubwomen responded to misrepresentation at the PPIE by forging more localized, collective practices of citizenship. These women navigated the fair's discriminatory structures and used the surrounding momentum to assert a presence that white fair organizers had worked to suppress. The 1915 PPIE symbolized a turning point in Black women's civic activism in the Bay Area, highlighting how African American women contested distorted portrayals of race and carved out space for their voices in the public sphere. This research addresses archival silences and emphasizes the significance of Black women in shaping racial uplift and civil rights discourse in the early 20th century.

MARIA SABINA SANCHEZ SEGURA
University of California, Davis
Gendering Communism: The Discrimination of Mexican Women within El Partido Comunista Mexicano during the Cold War Era.
Location: Innovation

In this work, I intend to analyze the mobilization of El Partido Comunista Mexicano (PCM) during the 1950s and 60s, emphasizing the role of Mexican women. Focusing on the influence of the overwhelmingly masculine political leadership and the lack of importance placed on Mexican women by the Mexican Communist Party leaders, this article studies how the party's internal hierarchy and structure made it very easy for women to become overpowered and outnumbered. Which, in turn, had a hand in potentially impeding the Partido Comunista from increasing its membership, as many Mexican women began to align themselves with organizations like the Women's International Democratic Federation (WIDF) and political parties like El Partido Popular(PP), recognizing the roadblock created by their gender. Through the exploration of archives of Mexican Communist artwork, the party's published ideological guides, and secondary sources explaining the inner workings of the PCM, this work expects to paint a clearer picture of the discrimination that made women feel unwelcome from entering communist political spaces and becoming active political actors, especially during the Cold War Era.

July 29, 2025 - 9:30 AM - Microbiology, Immunology, Molecular Genetics Breakout I: Panel A

ANITA KIM
University of California, Davis
Immune Cell Infiltration in the Olfactory Bulb Following SARS-CoV-2 Infection and Possible Implications for Alzheimer's Disease
Location: Catalyst

This study examines immune cell infiltration into the olfactory bulb (OB) of mice following nasal administration of inflammatory agents, focusing on SARS-CoV-2 (CoV2) infection and its potential implications for Alzheimer's disease (AD). Although the OB is typically protected by the blood-brain barrier, external contaminants from the olfactory epithelium (OE) have been shown to disrupt brain function, as observed in COVID-19 patients with neurological manifestations. Understanding immune cell dynamics in the OB is critical for determining how peripheral inflammation affects the brain, potentially contributing to the progression of neurodegenerative diseases. Immunostaining was performed on OB tissue from mice treated with lipopolysaccharide (LPS), polyinosinic-polycytidylic acid (poly-IC), or phosphate-buffered saline (PBS) as a control. Additionally, RNAscope analysis was performed on OB tissue from both mice genetically predisposed to AD and mice without this predisposition, treated with either CoV2 or PBS. Preliminary results show that LPS, Poly(I:C), SARS-CoV-2 nasal inoculation, and LPS injection induced infiltration of monocytes/macrophages, although these cells were rare. Inflammatory markers identified through RNAscope were also expressed by infiltrating monocytes. These findings suggest that monocyte infiltration occurs upon CoV2 infection in the OE. The OB itself does not exhibit CoV2 infection, but crosstalk between the OE and OB appears to trigger OB inflammation. Whether AD-prone mice exhibit altered levels of infiltration remains unclear and requires further investigation. Future work will further explore the role of CoV2 in triggering immune responses in the brain, aiming to better understand the neurological consequences of the virus in the context of AD.

CELINE SACKIH
University of Minnesota - Twin Cities
Determining the Genes Required for Gelatinase Activity in Enterococcus faecalis
Location: Catalyst

Enterococcus faecalis is a bacterium that causes many different types of infections in humans, including endocarditis, catheter-associated urinary tract infections, and root canal infections. The extracellular protease GelE is a significant virulence factor for E. faecalis. Its primary function is to degrade extracellular peptides and proteins, such as gelatin and host proteins. While the function of GelE for virulence and biofilm formation has been well studied, there is much to be understood about the genes that contribute to its regulation and activity. Therefore, the primary aim of this project is to determine the genes responsible for gelatinase expression and activity in E. faecalis. By having a full picture of the genes required for GelE activity, we may identify new targets for therapeutics that reduce the virulence of antibiotic-resistant E. faecalis strains. I am screening an E. faecalis transposon mutant library to determine strains that do not degrade gelatin. So far, I have identified 44 mutants that are required for gelatinase activity. The mutated genes encode peptidases, response regulators, and cold shock proteins. Identifying the genetic factors that influence GelE expression and activity will give us a better understanding of E. faecalis virulence and provide potential pathways in treating enterococcal infections more effectively.

JOSHUA ITO
University of Texas at Austin
Transactivation-Middle Domain Mutation in Sox9 Impacts Long-Bone Development
Location: Catalyst

Short stature is a broad clinical term describing individuals whose height is significantly below age and sex-matched population norms, often due to underlying skeletal dysplasia. For example, achondroplasia, or short-limbed dwarfism, involves a mutation in FGFR3 that leads to persistent SOX9 expression in hypertrophic chondrocytes, altering endochondral differentiation in the growth plate. Moreover, haploinsufficiency of SOX9 causes the severe skeletal malformation known as Campolemic Dysplasia (CD). Thus, the regulation of SOX9 expression and gene dosage is crucial for normal development and growth of endochondral bone. However, the mechanisms of regulation of SOX9 protein remains mostly unresolved. Our laboratory generated a mouse model with a hypomorphic in-frame microdeletion in the SOX9 transactivation domain (TAM), hereby Referred to as Sox9del. To evaluate the role of the TAM domain in postnatal long bone growth, we used micro-computed tomography (μCT) and histological analyses on femurs and showed that Sox9del mutants have reduced femur length, cortical thickness, and surface area mineralization. Histological assessments revealed reduced growth plate thickness, increased hypertrophy of chondrocytes, and disrupted chondrocyte organization, supporting that disruption of the SOX9 TAM domain impaired endochondral ossification. Future work will explore how the expression of SOX9 and other regulators of chondrocyte differentiation in the growth plate are effected in Sox9del mutant animals. Together, these findings demonstrate that the SOX9 TAM domain is necessary for optimal SOX9 function in the growth plate and suggest that low-effect variants in Sox9 may contribute to milder, short stature phenotypes, including forms of skeletal dysplasia such as achondroplasia.

MIGUEL SOTO
University of California, Davis
Engineering an Efficient CRISPR Cas9 System for Gene Editing in Cupriavidus necator
Location: Catalyst

Cupriavidus necator is a particular strain of bacteria showing promise in industrial applications producing high value compounds or in environmental microbiology and bioremediation due to its metabolic versatility and high tolerance to environmental stressors. Development of an efficient and controllable CRISPR Cas9 toolkit is essential for efficient modification of this strain for a more streamlined work flow. To work towards this goal we will: (1) construct a CRISPR Cas9 system based on the rhamnose induction system and a self-splicing intron-based riboswitch system, (2) optimize the CRISPR Cas9 system through sgRNA design screening, Cas9 expression level optimization, DNA donor template screening, and parameters such as induction growth phase, transformation recovery, and selection stringency, and (3) knock out the endogenous plasmid within Cupriavidus necator based on the CRISPR Cas9 system for improved efficiency in C1 feedstock based bioproduction applications. These efforts aim to provide a foundation for an efficient and modular genome engineering platform for Cupriavidus necator for future synthetic biology applications.

July 29, 2025 - 9:30 AM - Psychology and Cognitive Science Breakout I: Panel A

NATE CASTELLANOS
St. Edward's University
Exploring the Role of Intercultural Competence for Bilingual Child and Adolescent Clinicians
Location: Pathways

Despite an increasingly interconnected world, Spanish-speaking clinicians who aren't properly trained in Spanish depend on their bilingualism to serve their diverse clients in a broader cultural humility effort. To promote effective clinical work, the service provider must be proficient in the native language and strive to overcome any cultural differences of the client. The main objective of this research was to explore how bilingual Spanish-English clinicians experience and navigate intercultural competency in clinical practice. In semi-structured interviews, six participants openly shared their experiences as professionals in their field. After initial impressions of recorded transcripts, we engaged in inductive and deductive coding. After patterns and significant statements were identified, they were grouped into key themes, centering the participants' voices while acknowledging the investigator's interpretations. These turned into superordinate themes that capture deeper meanings. A narrative summary was created using direct quotes from participants describing their connection to each other. These themes were related to existing psychological theories and research while staying true to the unique perspectives of the participants. Preliminary data analysis has been conducted and is still underway. Following a narrative inquiry approach, themes of trust within the dyad, curiosity of culture, and humanistic approaches have come up. This research's recommendations for practice are meant to inform improvement for training and supervision of bilingual clinicians.

HOWARD OWENS
University of Wisconsin - Madison
The Role of Environmental Responsiveness in Infant Language Learning
Location: Pathways

Infants learn by tracking patterns in their environment. This process, known as statistical learning, is especially important for early language development. There is evidence that different children have different statistical learning abilities; however, the factors driving these individual differences remain understudied. Understanding this key aspect of language learning is important, as it sets the stage for positive outcomes later in childhood, such as reading and math achievement. The current study investigates a novel explanation of individual differences in statistical learning: the responsiveness of an infant's environment. In our task, we manipulate the responsiveness of infants' environment based on their experience controlling a computer screen using their eye movements prior to a statistical learning task. For half of the infants, the screen responds to their eye-movements (e.g., when they look at an image of a pond, a duck pops out). The other half cannot control the screen. Next, in the statistical learning task, we measure infants' ability to anticipate an upcoming word as they gain exposure to predictable adjective-noun pairs (e.g., "little birdie" and "silly piggy"). For example, do they learn that when they hear "little", "birdie" will come next? We predict that participants who have the opportunity to control the screen will outperform those who cannot control the screen in the subsequent statistical learning task. These results would be the first in the field to suggest that infants' opportunities to engage with a responsive environment are one of the factors underlying individual differences in statistical learning ability.

NADYA MEJIA
University of California, Davis
The Influence of Acculturation on Maternal Interactions with Infant Boys and Girls.
Location: Pathways

From early in a child's life, parents modify their speech patterns in response to the infant's gender, even before the child begins to speak (Clearfield & Nelson 2006). Early speech patterns depend on the parent's culture, as culture and language are intrinsically bound (Kuchirko et al., 2020). Acculturation refers to how immigrants and their families adapt and adjust their behaviors, beliefs, and values while integrating to a new culture (Cabrera et al., 2006). Research has suggested that traditional gender roles influence individual interactions (Updegraff et al., 2014). In addition, acculturation has shown to decrease traditional gender roles, as a result of exposure to US culture (Updegraff et al., 2014). The purpose of this study is to examine whether Mexican-American parents communicate differently based on their infant’s gender and whether communication patterns relate to their level of acculturation. Seven-to-twelve-month-old infants and their mothers were recorded at an at-home play session. We analyze how mothers speak to their infants.We predict that mothers will verbalize more to their daughters and use more directive language to their sons. Additionally, the strength of gender differences may differ between more acculturated Mexican-American mothers and less acculturated mothers. Findings may help shed light on differential treatment infants receive through their caregivers affecting their language development.

SAMANTHA DE ALBA SANCHEZ
University of California, Davis
The Role of Parent-Child Conversations in Bilingual Language Development During Play
Location: Pathways

Previous research supports that high-quality adult-child conversations are beneficial to linguistic development (Røe-Indregård et al., 2022). With emphasis on the quality of conversation in addition to frequency, there is a need to analyze communication between parent-child dyads in everyday contexts, such as free play. Moreover, with the rising number of bilingual families in California, it is valuable to assess the conversations of dual language learners (DLLs) (Rivas, 2024). Understanding how DLLs and their parents use language during play can help parents and educators better support bilingual development. This study examines language use of 43 Spanish-English bilingual parent-child dyads (children aged 3–5) during free-play. The participants, recruited from Head Start programs in Northern California, identified as Mexican-American families. Data was collected in-person from 2019 to early 2020. Conversations between dyads during play (with lab-provided toys) were video-recorded, transcribed, and coded for language use (Spanish, English, mixed) and utterance type (Yont et al., 2003). Preliminary analyses show mothers produced more utterances than children and primarily spoke Spanish. Children were more likely to use a balanced mix of Spanish and English. While mothers guided activities and structured the conversation flow, children actively participated by managing mutual attention, engaging in interactions, and expressing preferences in both languages. These findings offer insight into how bilingual children and caregivers collaboratively construct conversations during play. Understanding bilingual parent-child communication may help inform parenting and teaching strategies that support L2 while preserving L1 and improving bilingual communication.

July 29, 2025 - 9:30 AM - Sociology and Public Affairs Breakout I: Panel A

AYONI NUNLEY
University of Oregon
Investigating Inconsistent Beliefs of Devout Trump Supporters
Location: Discovery

In the contemporary American political landscape, the polarization between Trump supporters and non-supporters has raised concerns about shifts in democratic values and ideological consistency. This study investigates whether Trump supporters demonstrate attitudinal inconsistencies regarding American democratic ideals based on source attribution, particularly when these ideals are framed as statements made by Donald Trump. Drawing on theories of political psychology and cult-like devotion, we hypothesize that Trump supporters are more likely to endorse democratic principles when attributed to Trump, even if those same principles are rejected when attributed to other figures or presented neutrally. An experimental survey will be administered in which participants rate their agreement with statements representing core democratic ideals (e.g., civil liberties, checks and balances), each randomly attributed to Trump, another political figure, or no source. Preceding this, a preliminary survey will assess the perceived importance of each ideal to the participant, which will be used as a covariate to examine the interaction between issue salience and response consistency. Participants will also provide demographic data and report their political affiliations, with Trump support operationalized based on voting history. We expect to find greater inconsistencies among Trump supporters, particularly on issues they deem less important, indicating that source cues may override personal belief systems. This research contributes to the growing literature on political identity, leader-follower dynamics, and the psychological mechanisms underpinning "Trumpism," offering insight into the potential long-term implications for democratic stability in the United States.

MATTHEW PLUCKER
University of Minnesota - Twin Cities
A Time-Capsule of Turmoil: A Phenomenological Study of Future Orientation During the Early Days of the Trump Administration on Gender and Sexual Minority Young Adults
Location: Discovery

Sexual and gender minority young adults (SGM-YAs, aged 18-25)have worse outcomes compared to peers. Emerging evidence suggests that the current political climate has exacerbated these pre-existing disparities by cultivating unprecedented conditions and great concern among SGM-YAs. These socio-political factors may greatly impact the degree to which SGM-YAs plan, work, and aspire towards their future goals, also known as future orientation (FO). FO is associated with several positive young adult development outcomes including higher academic performance, lower impulsivity, and lower suicidal ideation. Despite the prominent role FO plays in the development of young adults, few studies have been dedicated to examining how the political climate within which youth exist influences their FO. Even fewer studies have examined FO among SGM-YAs, representing a critical research gap. To begin addressing this gap, we are currently conducting a qualitative interview study with the aim of understanding how the current socio-political climate influences FO among SGM-YAs. We are currently conducting semi-structured qualitative interviews with a diverse sample of SGM-YAs (n=40: 10 Black, 10 Latinx, 10 White, & 10 Asian). Each transcript will be coded utilizing a descriptive, phenomenological approach. Preliminary evidence suggests participants feel hopelessness about the current state of the country and find it difficult to conceptualize a future wherein their marginalized identities are positively acknowledged and not seen as an innate deficit. While preliminary evidence suggests that the current socio-political climate has evidenced only negative outcomes related to our participants' FO, results are still pending.

AMINA HASAN
University of Minnesota - Twin Cities
Exploring the Heterogeneity of Muslim American Identity Constructs in the Context of the 2024 Presidential Election
Location: Discovery

In this research, I will examine the connections between identity constructs, political views, and voting behavior among different groups of Muslim Americans. The study of identity pursued here is tied to concepts of selfhood or positionality, as connected to the field of politics. Muslim Americans are often perceived as a monolithic group despite their ethnic, racial, national, gendered, cultural, and ideological/political heterogeneity. The purpose of this study is to explore the importance of understanding the complex, multilayered and heterogeneous nature of Muslim American identities. I will explore this issue by asking, what are the dimensions around which Muslim respondents construct their primary senses of selfhood in the context of U.S. domestic politics? Relevant dimensions of identity construction may include religion, political identity (Liberal/Democrat vs. Conservative/Republican), immigration status (being a first, second, or third generation), U.S. race constructs (the Black/White binary paradigm), gender, or other factors. For this study, I will be working with a subset of Muslim respondents drawn from a larger study on the 2024 election and social issues conducted by PI Professor Enid Logan of the University of Minnesota's Department of Sociology. Respondents will be given a 60-90 minute qualitative interview soliciting their views on social and political issues relevant to the recent election. I will then analyze these in-depth interviews to answer my research question. Results are pending.

CALEB GARCIA
Southern Methodist University
Demographics and Social Media: An Examination of SMU Students
Location: Discovery

Decades of research have studied the demographic breakdown of voters across the United States. Because of this, college students have been examined in various studies of demographic breakdown. Yet, these studies never focus on specific colleges, but rather on a coalition of college students to create generalizations. When examining the institution, Southern Methodist University (SMU) in Dallas, Texas, there is a limited amount of data linking demographic background to the student body's political ideology. The rise of social media in engaging younger people politically is largely underexplored and essentially uncharted territory. It begs the question: How do the demographic characteristics of SMU students influence their voting behavior and policy priorities, and what role does social media play in shaping their beliefs? To gather the necessary data, a survey, with some open-ended questions following a mixed methods approach, will be administered to the student population. Given the originality of the survey, I am actively collecting data from students. The results could reveal the intersectionality of a person’s personal beliefs that is amplified by their various environments, including social media. The data may also reveal that social media may serve as the main reason for political engagement in its entirety.

July 29, 2025 - 10:45 AM - Biology Breakout II: Panel B

LUÍS MILLAN
Augsburg University
Does Manganese Exposure Cause Changes in Gene Expression in Daphnia?
Location: Innovation

Manganese (Mn) is a common metal and an important trace element in biological systems. In humans, Mn plays an important role in many organs, including the brain. Mn is a constituent of superoxide dismutase (SOD), an antioxidant enzyme in the mitochondria. In humans, excess exposure to manganese damages neuronal mitochondria and results in a movement disorder known as Manganism, which shares some features with Parkinson's Disease. We have developed a model to study Mn toxicity using Daphnia magna (D. magna), freshwater zooplankton often referred to as "water fleas." Daphnia are found in lakes and ponds worldwide and have been used for decades as indicator species to detect contaminants in freshwater environments. Under normal conditions, Daphnia exist predominantly as clonal females reproducing by cyclic parthenogenesis. Our lab has previously shown chronic exposure to Mn concentrations ranging from 0.2 mg/L to 100 mg/L causes negative effects on reproduction, lifespan and locomotion of D.magna. We hypothesize that acute Mn exposure of 30 mg/L Mn induces a change in the expression of genes related to metal absorption and reproductive capabilities. To test this hypothesis, we have identified genes that are important for manganese utilization and reproduction: metallothionein and natalisin, genes that are present in the Daphnia magna genome and expressed in adults. We have developed and begun validation of qPCR assays to measure expression of metallothionein and natalisin. Future experiments will focus on quantitatively measuring gene expression in control and Mn treated D. magna.

SIERRA WHITMORE
Fayetteville State University
Effects of EGCG on HEK290 dopamingeric cell lines
Location: Innovation

Substance use disorder (SUD) is a chronic, relapsing condition that disrupts not only behavior but also key neurological and cognitive functions. While conventional treatments like Methadone Maintenance Therapy (MMT) and behavioral counseling have been effective in managing withdrawal symptoms and reducing substance use, high relapse rates and limited support for neural recovery remain significant concerns. Recent clinical studies have highlighted the potential of nutritional supplementation in improving mental health and cognitive performance in patients undergoing addiction treatment. These findings suggest that nutrient-based interventions may serve as valuable complementary therapies in the recovery process. This project aims to evaluate the therapeutic potential of Epigallocatechin gallate (EGCG), a natural antioxidant found in green tea, on dopaminergic neurons with downregulated dopamine D2 receptors (DRD2)—a molecular change commonly observed in individuals with SUD. Using CRISPR-Cas9 technology, DRD2 expression will be selectively depleted in cultured human dopaminergic cell lines, SH-SY5Y, to create a biologically relevant in-vitro model of addiction-related neuroadaptation. These modified cells will then be treated with EGCG, and their responses will be assessed using cell viability and apoptosis detection assays. The importance of this project lies in its contribution to the emerging field of nutritional neuroscience and its potential to identify novel, low-risk strategies for supporting brain health in individuals recovering from SUD.

XZTASHYA PORTER
Fayetteville State University
Evaluating the effects of Gallic Acid on SH-SY5Y Cells
Location: Innovation

Substance use disorder (SUD) is a chronic, relapsing condition with strong neurobiological underpinnings, including dysregulation of the dopaminergic system. The dopamine D2 receptor (DRD2) plays a critical role in reward signaling and is frequently altered in individuals with SUD. Gallic acid, a naturally occurring polyphenol with neuroprotective properties, has shown potential in modulating oxidative stress and inflammation—key factors in neurodegeneration and addiction pathology. This proof-of-concept study investigates the impact of gallic acid on dopaminergic signaling in SH-SY5Y cells with reduced DRD2 expression. CRISPR-Cas9 gene editing was employed to knock down DRD2 in SH-SY5Y cells, creating a simplified in vitro model to explore the compound's therapeutic potential. Cell viability and expression of downstream dopaminergic markers were assessed following gallic acid treatment. Findings from this study will provide preliminary insights into the feasibility of targeting dopaminergic pathways with plant-derived compounds and inform future research using more physiologically relevant neural models.

JANNET NORIEGA
University of California, Davis
Investigating cardiac muscle dysfunction in Caenorhabditis elegans models of Emery-Driefuss muscular dystrophy caused by missense mutations in human LMNA
Location: Innovation

Emery-Dreifuss muscular dystrophy (EDMD) causes progressive skeletal muscle weakness and cardiomyopathy. EDMD belongs to a diverse group of diseases called laminopathies caused by mutations in LMNA and other lamin genes. LMNA encodes lamin A/C, intermediate filament proteins that form the nuclear lamina along the inner nuclear membrane, providing critical mechanical stability to the nucleus. Previous work established Caenorhabditis elegans models of striated muscle laminopathies by introducing pathogenic human LMNA variants at conserved residues within the C. elegans lmn-1 gene. These variants, associated with both skeletal and cardiac defects in humans, produced severe phenotypes including decreased brood size, increased embryonic lethality, reduced motility, and nuclear morphology defects. However, cardiac muscle dysfunction – a major cause of morbidity and mortality in EDMD patients – remains uncharacterized in these models. Here, we address this critical gap by quantifying pharyngeal pumping function, leveraging the pharynx as a cardiac muscle surrogate due to its intrinsic myogenic activity and nervous system regulation. We measured pharyngeal pumping rates across C. elegans developmental stages in animals carrying pathogenic LMNA variants. Our findings reveal how nuclear lamina disruption specifically affects cardiac muscle function, providing mechanistic insights into poorly understood cardiomyopathy phenotypes that could inform therapeutic strategies for laminopathy patients. This work establishes a quantitative framework for assessing cardiac dysfunction in C. elegans laminopathy models, enabling future drug screens and mechanistic studies of this devastating disease family.

July 29, 2025 - 10:45 AM - Humanities Breakout II: Panel A

CELIA HOW
Bowling Green State University
Discrepancies Between Policy and Lived Experience: How Spain's Immigration Framework Does and Doesn't Align with Refugees' and Undocumented Migrants' Realities.
Location: Pinnacle

Despite extensive academic research and media coverage on refugees and undocumented migrants in Spain, these narratives often remain disconnected. This gap raises concerns about whether research fully captures the lived realities of displaced individuals. This qualitative study examines whether existing literature aligns with the experiences of refugees in Alcalá de Henares, Spain, and how these experiences compare to those of migrants elsewhere in the European Union. Semi-structured interviews were conducted with a refugee center director, a volunteer Spanish teacher, a refugee, and an undocumented migrant. Findings indicate that while academic research generally reflects key aspects of the refugee experience, it often underrepresents a critical issue: the inability to access legal employment despite a strong desire to work. This challenge has profound impacts on autonomy, dignity, and integration but receives less attention than factors like housing or institutional conditions. Additionally, perceptions of Spain as a welcoming country vary significantly depending on individual backgrounds and circumstances. This research highlights the necessity of integrating firsthand narratives into academic and policy discussions to bridge existing knowledge gaps and better inform supportive interventions for refugee communities.

MIA "BO" VILLARREAL
St. Edward's University
Respect for Migrant Farmworkers: An ethical exploration of how past and current regulations affect the living conditions of farm-workers in Michigan and the broader United States
Location: Pinnacle

While scholars have applied deontological and communist economic theories to examine the treatment of sweatshop workers under Multinational Enterprises, the ethical dimensions of migrant farmworker treatment and living conditions have received insufficient attention. Despite the essential labor provided by migrant farmworkers—whose livelihoods depend directly on their place of employment—there remained a critical gap in recognizing their experiences within ethical frameworks. Through a comprehensive literature review that revealed this scholarly gap, combined with content analysis and semi-structured interviews, this study examined the lived experiences of migrant farmworkers to address the absence of qualitative ethical frameworks examining consent violations. I argue that when ethical conditions are tested under Onora O'Neill's framework for consent, the mere observation of consent does not prove that agreements are fair or ethical. The prevalence of loophole contracts—often deliberately obscured—demonstrates the inadequacy of consent-based frameworks alone. This analysis reveals the need for regulatory approaches that do not rely on self-verification of contracts. Furthermore, I contend that the legal permission of underage agricultural work remains ethically problematic under Kantian principles: while children possess the extended personhood that grants them equal respect as moral agents, their incomplete rational development renders them incapable of making truly consensual agreements. These findings contribute to a more nuanced understanding of how consent violations manifest in agricultural labor practices and challenge existing assumptions about the sufficiency of consent-based ethical frameworks.

MIREYA GUTIERREZ VASQUEZ
University of California, Los Angeles
Resilience en la Lucha: The Migration Trajectory of Central American Adults
Location: Pinnacle

Central Americans face political instability, violence, and economic disparities–largely rooted in U.S. interventions carried out between 1960s and 1990s–forcing many to flee their countries and face further challenges throughout their migration journey. While existing research has examined the mental health outcomes of Latines, such as PTSD and depression, studies focusing on Central Americans remain limited. We especially know little about positive coping mechanisms they have developed to navigate hardships before, during, and after migration. Through an asset-based approach, this research explores how Central American migrant adults perceive and cope with experiences of violence and trauma, particularly the sources of resilience they rely on at each stage of migration (pre-migration, migration, post-migration). Using a qualitative Testimonio approach informed by Bronfenbrenner's (1979) Ecological Systems Theory, I will interview 6 Central American participants to document their life stories and perspectives, along with 3 mental health providers to further examine their Central American clients' sources of resilience and coping. I aim to showcase how Central Americans build resilience in the face of adversity throughout their migration journey and the factors that shape it, challenging existing frameworks that tend to overlook their ways of coping. Because they are too often lumped under the "Latine" category, this project centers Central Americans' unique migration trajectories, coping strategies, and advocates for the well-needed culturally sensitive, trauma-informed interventions.

SA'DIAH BURKE
Rider University
Imposter Syndrome, Identity and Grit
Location: Pinnacle

One of the greatest challenges in personal development is establishing a coherent sense of self, which is resilient to challenges that often disrupt one's identity as currently described by the Imposter Syndrome. The Imposter Syndrome is not a DSM-V diagnosis, but it is common across today's students and in need of additional research and interventions. In prior studies within our laboratory, we have found that higher levels of GRIT were associated with lower levels of math anxiety and higher levels of self-regulation in online learners. Furthermore, higher levels of mental toughness in Division I athletes was observed. In the present study, we seek to examine if those scoring higher in GRIT would report fewer behaviors representative of Imposter Syndrome. In the present study, participants completed the Imposter Scale, the GRIT scale, and the Functions of Identity Scale. GRIT scores will be rank-ordered into terciles (lower, middle, upper), with scores on the Imposter Scale and Functions of Identity Scale. Multivariate analyses will be employed to evaluate survey data as a function of the GRIT terciles. While data collection remains on-going, initial analyses demonstrate that participants with higher levels of GRIT report fewer Imposter Syndrome symptoms and higher total scores on the Functions of Identity Scale. Thus, highlighting the importance of cultivating mental resilience to lessen Imposter Syndrome symptoms, enhance individual performance, and increase satisfaction of life.

July 29, 2025 - 10:45 AM - Neuroscience Breakout II: Panel A

JUAN DE JESUS NOGUERON-HERNANDEZ
University of Minnesota - Twin Cities
The Cerebellum's Role in Addiction
Location: Odyssey

Opioid Use Disorders (OUDs) are of growing concern in the United States, as opioid related deaths have been increasing in recent years. Opioids are highly addictive and strengthen reward circuitry which makes it harder to stop their use. The area of the brain which is heavily involved in the reward circuitry is the ventral tegmental area (VTA) and has been the main area of research for studying the addiction pathway for many years. However, recent studies have shown a potential link between addiction and the cerebellum, which hasn't been fully understood. Our study aims to explore this potential link between the cerebellum and addiction via the deep cerebellar nuclei (DCN), which have direct projections to the VTA. We have injected AAV virus into the DCN of mice which will express inhibitory designer receptor exclusively activated by designer drugs (DREADDs) activated by CNO or the control virus expressing mCherry only. As such all mice will be injected with the virus but only some will express DREADDs in their DCN neurons. The mice will then undergo morphine conditioned place preference (CPP), using a two chambered apparatus for four days and on the fifth day undergo a preference test. Our study predicts that mice which had their DCN neurons inhibited by CNO during the conditioning period will show less preference for the morphine side during their preference test, compared to control mice which had no DCN inhibition. Our study has the potential to provide evidence for the novel cerebellum's involvement in opioid addiction.

LOURDES CAZARES
University of New Mexico
Effect of Third-Trimester-Equivalent Alcohol exposure on neuronal densities in the Cerebellar Lobule VI and Crus I
Location: Odyssey

Deficits in executive function are well-documented in both animal models and individuals with Fetal Alcohol Spectrum Disorders (FASD). Cerebellar regions such as lobule VI and Crus I are key mediators of executive function and may be vulnerable to alcohol-induced damage. This study tested the hypothesis that binge-like ethanol exposure during the rodent equivalent of the human third trimester—postnatal day (P)6 in mice—leads to neuronal loss in these regions. We used two transgenic mouse strains: 1) Ai32(RCL-ChR2(H134R)/EYFP mice, which express channelrhodopsin-2/EYFP /EYFP/EYFP upon Cre recombinase activation (for future optogenetic studies), and 2) VGAT-Venus mice, which label GABAergic and glycinergic neurons with fluorescence, aiding cell identification. Mice received a single subcutaneous injection of ethanol (3.5 g/kg) or saline at P6 and were left undisturbed until adulthood. Immunohistochemical analysis of cryosectioned cerebellar tissue was used to assess neuronal density. Ai32 sections were stained with anti-calbindin antibodies (to label Purkinje neurons) and anti-NeuN antibodies (to label postmitotic neurons, particularly in the granule cell layer). Fluorescence imaging was performed using a Zeiss Axioscan Z1 at 20X magnification; analyses were conducted using Fiji (ImageJ). In Ai32 mice, no significant treatment effects were observed in the density of Purkinje or granule cells in lobule VI or Crus I, suggesting that ethanol-related executive function deficits occur without neuron loss in these regions. Ongoing analysis in VGAT-Venus mice aims to assess the selective vulnerability of inhibitory neurons. Future studies will investigate whether early alcohol exposure leads to persistent functional changes in cerebellar circuits critical for executive function.

MAATHIR BASI
University of Nebraska–Lincoln
Is a history of probable brain injury associated with greater depression among persons who inject drugs (PWID)?
Location: Odyssey

Injection drug use (IDU) poses a wide range of health risks, yet the combined effects of overlapping conditions like brain injury (BI) and depression remain underexplored. BI, often resulting from accidents, assaults, or overdose-related events, may impair emotional regulation and cognitive functioning in persons who inject drugs (PWID). Depression is already prevalent among PWID, but it is unclear whether TBI intensifies this risk. This study explores whether the relationship between IDU and depression differs by a history of probable BI. Data for this study were collected as part of a larger study of Hispanic PWID living in Puerto Rico (Chiou et al., in press). All participants were screened for a history of IDU through self-report, visual inspection, and verified by urine sample. The history of probable BI was determined through a set of questions based on the Ohio State University-TBI Identification Method. Structured interviews were administered to collect information on participants' substance use patterns, psychiatric symptoms, and demographics. Independent t-tests will be used to compare scores of psychiatric functioning between participants with and without probable BI. We expect that PWID with a history of probable BI will report higher levels of depression than those without. These findings may offer insight into how neural injury influences psychiatric outcomes in people who inject drugs and support future research on mental health disparities in underserved populations.

SELENA SAVATDY
University of Minnesota - Twin Cities
Motivational Impacts of Midbrain Acetylcholine Release
Location: Odyssey

Motivation involves complex neural circuits, particularly within the midbrain and striatum, where neurotransmitters play significant roles in shaping reward-driven behavior. Recent studies suggest acetylcholine (ACh) release in the ventral tegmental area (VTA) as a key modulator of reward-seeking behavior. This study aims to investigate how manipulating ACh levels in the VTA during behavioral trials influences motivation toward natural rewards. To examine this, a series of behavioral paradigms were enacted, including reward consumption, Pavlovian conditioned reward-seeking, contextual renewal, and sensory-specific satiety. Pharmacological manipulations were used to alter cholinergic activity within the VTA. Twenty-three Long Evans rats (11 male, 12 female) were surgically implanted with cannula targeting the VTA to enable precise delivery of the following drugs. Rats received VTA infusions of either saline as a control, mecamylamine which blocks nicotinic receptors, physostigmine which increases ACh levels by inhibiting acetylcholinesterase, or scopolamine which blocks muscarinic receptors prior to testing. These treatments aim to isolate the contributions of specific cholinergic receptors on motivational processes. We expect that increasing ACh tone in the VTA will enhance motivation and reward-seeking and consumption, whereas blocking ACh signaling at muscarinic and nicotinic receptors will blunt reward-seeking. This research aims to fill a gap in understanding how cholinergic signaling within the midbrain contributes to motivational processes and how it may interact with dopaminergic systems in shaping reward-related behavior.

July 29, 2025 - 10:45 AM - Poster Session 1: Anthropology, Gender, and Ethnic Studies

SOPHIA BALLIN
California State University, Stanislaus
Consumer Perceptions and Patronage of Farmers' Markets in California's Central Valley
Location: Optimist

This study investigates consumer behaviors, perceptions, and motivations regarding farmers' market patronage in California's Central Valley, with a focus on both attendees and non-attendees. While previous research has largely explored why consumers choose to shop at farmers' markets—highlighting preferences for fresh, local produce, and community engagement—fewer studies have examined the reasons behind non-attendance. This research addresses that gap by comparing the perspectives of farmers' market patrons and conventional grocery store shoppers. Utilizing a convenience sample of 100 participants from the Turlock Certified Farmers' Market and four grocery stores in Turlock, California, the study uses surveys to assess demographic data, shopping habits, perceived barriers, and motivations. Key objectives include identifying factors that influence consumer decisions to attend or avoid farmers' markets and analyzing how variables such as convenience, affordability, awareness, and social relevance affect market participation. Findings will contribute to a broader understanding of local food system engagement and offer actionable insights for market organizers seeking to attract a more diverse and consistent customer base. Given the Central Valley's importance as an agricultural hub, understanding local consumer patterns is crucial for promoting sustainable food systems. This research aims to inform strategies that increase accessibility and inclusivity at farmers' markets by addressing barriers identified by underrepresented consumer groups. The study also explores how food shopping reflects larger issues such as economic access, community connection, and environmental values. Ultimately, the goal is to support farmers' markets in becoming viable, appealing alternatives to conventional food retail for a wider range of consumers.

GABRIELLA MANRIQUE
Southern Methodist University
Crisis, Comprehension, and Culture: 'Family Tensions' Through the Eyes of Latino Youth
Location: Optimist

This study seeks to investigate how Latino youth ethnographically experience family tensions while navigating early psychosis and the implications impacting youth because of their family. In clinical settings, early intervention and mental health services are increasingly emphasized, however Latino youth remain underrepresented in treatment due to cultural and healthcare gaps. Methods: Drawing from qualitative data gathered by the Dr. Neely Myers' Mental Health Innovation Lab from 2014-2017 and following the interlocutors up to 16 weeks, this study re-explores the archival data and investigates deeper and focused meanings on how youth interpret their diagnosis and treatment within the context of family support and tensions. Results: Out of (N=47) total people and specifically examining (n=21, 45%) interviews, 21 youth who self-identify as Latino, the highest identified thematic code most discussed within the interviews of their clinical experience is 'Family Support/Lack of Support' (n=20/21, 95%). Within this top identified thematic code, the highest code of 'Family Tensions' (n=19/21, 91%), co-occurs (n=20/21, 95%). What we found was: 1) Knowing that someone cared; 2) Being Closed off to family; 3) Family tensions encompasses misunderstandings. Conclusion: Identifying the intersection of 'Family Support/Lack of Support' with 'Family Tensions' for Latino youth will contribute to recognizing the central role that family plays in internal conflict and social barriers to care by acknowledging the importance of 'Family Support/Lack of Support' as explored in this research and supported by the literature.

WILLIAM ALLEN
Wesleyan University
A Historical Analysis of Firearms in Christian Publications Using Natural Language Processing
Location: Optimist

Achieving principled historical analysis while avoiding researcher bias is a pertinent issue. In this project, we apply natural language processing techniques such as topic modeling and large language model interpretations to examine the presence and context of firearms-related language in Christian publications spanning the past two centuries. By leveraging these tools, we approach the subject with greater objectivity, allowing patterns and themes to emerge from the data itself rather than being shaped by prior assumptions. This poster focuses on the methodological framework behind such an approach, illustrating how data-driven techniques can be used to explore sensitive historical questions.

July 29, 2025 - 10:45 AM - Poster Session 1: Biology

ARTURO VALADEZ
Boise State University
Mechanistic Insights into the Toxic Effects of Profenofos and Mancozeb, Common Agricultural Pesticides in Rwanda
Location: Optimist

This research examines the health effects of two pesticides: profenofos and mancozeb, focusing on their biological mechanisms of toxicity. Our lab group identified profenofos and mancozeb as two of the most widely used pesticides in Rwanda, despite profenofos no longer being registered for use in the US, and mancozeb being banned in the EU due to its known health effects. We have conducted a literature review centered on profenofos and mancozeb, with additional research into related pesticide classes: organophosphate insecticides and ethylene bis-dithiocarbamate fungicides. The literature review drew on scientific articles from PubMed, Google Scholar, and ScienceDirect, as well as government documents such as EPA reports and publications from individual states and the US Department of Agriculture, international agencies, and toxicology databases describing the acute and chronic health impacts of pesticides. Profenofos, a neurotoxic insecticide, has been linked to short-term symptoms including miosis, urination, diarrhea, diaphoresis, lacrimation, central nervous system excitation, and salivation, as well as long-term risks such as neurological damage and endocrine disruption. Mancozeb, a fungicide, has been linked to short-term symptoms including skin irritation, coughing, sneezing, sore throat, and bronchitis, and long-term risks including thyroid dysfunction, reproductive toxicity, and neurotoxicity. This research is important because farmers in places like Rwanda often use pesticides that are banned or restricted in other countries without access to proper training or protective equipment, increasing their risk of exposure. Understanding the toxic profiles of these pesticides can help design interventions that reduce poisoning events and protect people who are exposed to them.

SOFIA AMARAL
California State University, Stanislaus
Investigating the Correlation Between Textile Materials and Environmental Conditions on DNA Degradation in Bloodstains
Location: Optimist

DNA is a crucial component of forensic science analysis, and its degradation can impact the reliability and accuracy of forensic results. This study investigates how different textile materials and environmental conditions influence DNA degradation and the efficiency of DNA extraction from blood stains. By understanding the limitations of DNA, forensic scientists can understand the limitations of their own analysis. 500 µl of swine blood will be placed on different textiles (faux leather, wool, polyester, and cotton) and left in varying environmental conditions for a set number of hours. These conditions are meant to represent real-world forensic scenarios. DNA extraction and quantification will be performed at designated time intervals to assess degradation rates and the effectiveness of extraction. Each sample will be prepared by cutting a 1 cm^2 square of stained fabric and placing the fabric in a microcentrifuge tube. Extraction of DNA will be conducted following a phenol-chloroform protocol. The analysis of DNA quality will be measured using Agarose Gel Electrophoresis and Nanodrop. Different textile materials and environmental conditions will significantly affect the rate of DNA degradation in bloodstains with natural fibers exhibiting higher degradation rates under harsher environmental conditions compared to synthetic fibers.

JIANNA TLASECA AVILA
The College of St. Scholastica
In-vivo imaging of PV neuron activity during fentanyl self-administration in mice
Location: Optimist

Opioid addiction is an epidemic with U.S. fentanyl overdose death rates escalating. Addiction is a chronic brain disorder marked by compulsive drug use and a pervasive vulnerability to relapse. The Nucleus Accumbens (NAc) brain region is the central hub for reward circuitry and plays a key role in driving addictive behaviors. In the NAc, Parvalbumin Interneurons (PV) strongly inhibit medium spiny neurons (MSN); these sparsely expressed neurons have been suggested to help control how the local brain circuits work during reward-seeking behavior. Using fiber photometry, we tested whether PV interneurons in the NAc respond to fentanyl-associated cues during intravenous self-administration (IVSA). PV-2A-Cre mice were injected with GCaMP, a calcium indicator, and implanted with fiber optic cannulas. After receiving IV catheters, mice underwent IVSA training. Neural activity was recorded across four phases: acquisition (lever learning), intermittent access (alternating drug availability), progressive ratio (measuring motivation), and reinstatement (drug- and cue-induced relapse). During drug-available sessions, PV activity increased after active lever presses ($p < 0.01$). When the houselight signaled drug unavailability, PV activity also rose ($p < 0.001$), but not when the light turned off to indicate drug access. In the progressive ratio phase, PV activity was elevated during rewarded lever presses ($p < 0.001$). In reinstatement, both cue exposure and lever pressing increased PV activity. These results suggest PV interneurons become more active regardless of fentanyl presence, indicating a role in drug-seeking behavior. Future studies will use dual-color photometry to explore how PV activity influences MSN responses in the NAc circuit.

TIMOTHY CONNER
University of Wisconsin - Whitewater
Transgenerational effects of early exposure to benzaldehyde in the development of Caenorhabditis elegans.
Location: Optimist

Caenorhabditis elegans are free-living nematodes that use olfactory cues to navigate their environment (chemotaxis). One chemical that triggers chemotaxis in C. elegans is benzaldehyde. Benzaldehyde is a food additive that has an almond-like odor. When exposed to benzaldehyde in various dilutions for a short time, the worms display attractive behavior. Moreover, prolonged exposure to benzaldehyde causes an increase in attractive behaviors to be passed down through multiple generations. Studies have shown that exposing C. elegans to benzaldehyde at various dilutions for 5 consecutive generations is enough to continue to show enhanced attractive behavior for 40 generations. However, C. elegans exposed to undiluted concentrations of benzaldehyde display avoidant behavior.The literature has not fully explored whether undiluted benzaldehyde causes the inheritance of avoidant behavior and if it can be passed down to multiple generations, similarly to attractive behaviors. My study will look to understand how the timing of exposure within early development determines the strength/ duration of inheritance of avoidance behaviors. I believe that worms exposed to benzaldehyde in high concentrations during early development will pass avoidant behavior to more generations, and the effects will be stronger, lasting more than 40 generations. I aim to understand when avoidant behavior occurs, what neurons are active when behavior is switched to stable inherited avoidant behavior, and what signaling pathways are affected. Because C. elegans shares similar conserved genes, signaling pathways, and neuronal circuitry as humans, this research should provide a solid foundation for my future research endeavors.

July 29, 2025 - 10:45 AM - Poster Session 1: Engineering

CAMDEN WEBSTER
Boise State University
Development of a Ferromagnetic Resonance Measurement System for Microwave-Magnetic Interaction Analysis
Location: Optimist

Ferromagnetic resonance (FMR) is a powerful technique for studying the interaction between microwaves and magnetic materials. Microscopic magnetic phenomena, such as FMR, enable the control and manipulation of magnetic materials through external fields. In this research, an FMR measurement system is being developed to analyze how external magnetic fields induce resonance in a material's magnetic moments. By measuring the resonance frequency, we can determine the material's ability to absorb specific microwave frequencies and power levels. The system is designed to be highly sensitive to different types of magnetic materials, their thicknesses, magnetic ordering, and chemical composition. These findings are essential for understanding magnetic material behavior in wireless applications, providing insights into their potential for advanced communication technologies.

ALEXANDRA REYES
Southern Methodist University
A Survey of Signals and Noise at High-Frequency Infrasound Arrays in Nevada and South Korea
Location: Optimist

Infrasound—low-frequency sound below the threshold of human hearing—has been used for decades to monitor natural and human-made events, including volcanic eruptions, meteorite entries, and explosions. While most studies focus on very low frequencies (below 5 Hz), there is growing interest in higher frequencies, including the edge of the audible range (5–30 Hz), which may better capture smaller or more local events. This study addresses that gap by deploying high-frequency (HF) infrasound arrays within existing monitoring networks in Nevada and South Korea. The Nevada HF array, installed in 2023, enhances the detection of nearby signals that traditional arrays may miss. Using a new signal-processing software package, Cardinal, one year of data was analyzed to extract signal direction, speed, and strength through array-based techniques. Events were cataloged, including repeating sources such as mining activity, machinery, and explosions from the Hawthorne Munitions Depot. Ambient noise levels were averaged across the year and compared to existing infrasound low- and high-noise models, revealing frequency-dependent gaps in current frameworks. Preliminary results suggest the Nevada HF array improves detection of local signals and enhances regional monitoring in complex environments. This work supports advancements in infrasound monitoring and demonstrates the utility of smaller-scale arrays for studying atmospheric sound propagation. Ongoing work will examine spatial and frequency-dependent coherency of signal and noise across the array using coherence metrics, and incorporate atmospheric modeling to assess noise variability under changing conditions, guiding detection improvements and informing the design of next-generation high-frequency infrasound arrays.

July 29, 2025 - 10:45 AM - Poster Session 1: Humanities

VIVIAN WHITE
California State University, Stanislaus
Indigenous Voices and the Global Reception of "La teta asustada"
Location: Optimist

"La teta asustada" (The Milk of Sorrow), directed by Peruvian filmmaker Claudia Llosa, gained international recognition, winning the Golden Bear at the 2009 Berlin international Film Festival. The film has also received tremendous academic interest for its representation of trauma in Peru's internal armed conflict during the 1980s that severely impacted Andean women. Although the film has been praised internationally, it has also received vast criticism; particularly regarding the cultural disconnection between its producer, Claudia Llosa, and the Indigenous communities that are represented in the film. This study analyzes the film through a decolonial theoretical framework, with a focus on the works of Anibal Quijano and Walter Mignolo, and utilizes a comparative discourse analysis of both Western and Indigenous interpretations of the film. The methodology includes textual analysis of the film, review of critical literature, newspapers, magazines, social media commentary, and vlogs. This study argues that understanding trauma in "La teta asustada" through Indigenous' perspectives goes beyond fairness; it is an ethical responsibility to validate their narratives and experiences which provides a more complete meaning to the story.

BRENDA SÁNCHEZ TISCAREÑO
Marquette University
Analyzing The Effect and Influence Social Media Marketing Has on Minority Children
Location: Optimist

Social media marketing has been one of the current strategies in marketing due to the emerging technologies and the high use of social media around the world. In this study, the author will analyze the effect and influence social media marketing has on minority children. This research raises awareness on how the current marketing techniques may affect children's mental health and development. With sources that cover topics like how social media impacts children's mental health, what is the impact of child targeted advertising, and the exposure children have to social media, these will serve as a tool to further understand the research. The method the author used is a quantitative method specifically through Qualtrics surveys. This method is applied through a survey for both a parent and the child. Parents will reflect on the effect of social media marketing on their children, analyzing the effect social media marketing has on their children. The theories used throughout the research are SWOT analysis, Brand Equity, and Social Exchange Theory. The following theories listed connect with the resources the author has found and help further understand social media marketing's effect and influence on minority children. The anticipated findings will show the negative effect of social media marketing on minorities. The study will provide new knowledge and will allow readers to understand the importance of what children are exposed to and how children today react to the current marketing techniques.

NATALIE GUERRERO
University of California, Santa Barbara
Modern Evolution in Conspirituality
Location: Optimist

"Conspirituality" is a way that some scholars have described the intersection of male-dominated, typically right-leaning conspiracy spaces and female-dominated, left-leaning, "New Age" or "metaphysical" spirituality. In both conspiracy and New Age subcultures, nothing happens by accident, nothing is as it seems, and everything is connected. Though the two subcultures are perceived as largely different, their overlap has created a pipeline from liberal spirituality to conservative right-wing politics. This review aims to identify the emergence of a shift in Conspirituality, characterized by a proliferation of multiple beliefs disseminated via short-form content. Scholars have acknowledged this shift, noting algorithmic influence, the pandemic, and social media, as pertinent phenomena in modern Conspirituality. I argue that Conspirituality could be better understood by organizing its phases around the use of different networked platforms, and look to contemporary media to see Conspirituality's influence on the real world. Producing a media focused history of Conspirituality is critical to it's understanding as it continues to evolve, acknowledging how the presence of short-form content and media influence have far altered the movement. We can see this in society at large, with observable consequences of Conspirituality's rising influence, including MAHA and rising anti-vaccine sentiment.

July 29, 2025 - 10:45 AM - Poster Session 1: Psychology and Cognitive Science

BRANDON DONA-VELAZQUEZ
Loyola Marymount University
Medical Trust, Financial Concerns, and Preference for an At-Home Cervical Cancer Screening Test among Hispanic/Latina women aged 21-65 in the U.S.
Location: Optimist

Hispanic/Latina women in the U.S. face a 36% higher incidence of cervical cancer than non-Hispanic White women but have lower screening rates (69% vs. 80%). In May 2025, the FDA approved the first at-home cervical cancer screening kit, which may help reduce barriers to screening such as financial concerns and low trust in healthcare. However, it remains unknown whether Hispanic/Latina women who face these barriers prefer at-home vs. clinic-based screening. To test whether financial concerns, trust in doctors, and/or trust in the healthcare system predict preference for at-home vs. clinic-based cervical cancer screening among Hispanic/Latina women. We used a subsample (n=367) of Hispanic/Latina women aged 21–65 from the 2024 Health Information National Trends Survey (HINTS) Cycle 7. A multivariable logistic regression model was conducted to test whether financial concerns, trust in doctors, and trust in the healthcare system predicted preference for at-home screening, controlling for income and insurance. Higher levels of financial concerns were significantly associated with greater odds of preferring an at-home cervical cancer screening test (OR=1.63, p=.050, 95% CI [1.00, 2.66]). Trust in doctors and trust in the healthcare system were not significantly associated with screening preference (all p > .270). Financial concerns predicted preference for at-home screening among Hispanic/Latina women, suggesting that structural or financial barriers may shape screening decisions. As at-home tests become more available, ensuring affordability and insurance coverage will be key to reducing screening disparities.

MOHRAEL SOLIMAN
Rider University
The Impact of Adverse Childhood Experiences on Adult Stress-Coping Strategies and Adult Resilience
Location: Optimist

Adverse childhood experiences (ACEs) are acknowledged as substantial risk factors for a range of long-term detrimental physical, psychological, and social outcomes in adulthood, in addition to overall well-being and functioning. When an individual is exposed to ACEs, which are various prolonged traumatic events, they are more susceptible to disruption of neurodevelopment that can lead to long-term cognitive impairment; thus increasing vulnerability to emotional and cognitive dysregulation in adulthood. Evidence suggests that individuals who are exposed to ACEs are more likely to be less mentally resilient and use maladaptive strategies to cope with stress. This literature review explores the link between exposure to ACEs and individuals' particular strategies to cope with stress and their resilience levels in adulthood. We hope to show that distinct interventions, such as having supportive relationships, access to therapy, and learning effective problem-solving skills can positively impact resilience levels and alleviate long-term consequences of ACEs, thus promoting resilience despite childhood trauma.

ISABELLA MONTERROSO
University of California, Santa Barbara
Father Figures and Youth Wellbeing: Links to Internalizing Symptoms
Location: Optimist

Mental health challenges among young teens is a widespread concern. During early adolescence, youth shift through developmental stages like social and biological changes. This plays a significant role in negative behavior, mental health, and decision making. While this is normal due to age and oftentimes just requires time and maturity for improvement, for others it may not be so simple. It is important to notice the difference between age related behavioral and mental health problems to individuals who may be lacking the support at home and in need of intervention. While a wide range of at-home factors can play a role on young teens mental health and behavioral trajectory, this study focuses on youth in their early teens and the presence or absence of a father figure and how this affects young teens mental health and internalizing symptoms. Data for this study was collected from the Secure Families Project where students took part in a preventative program that addresses violence in marginalized communities. Youth filled out self reported surveys where they were asked questions about their home environment, school experience, and internalizing symptoms. For this study, home environment, specifically father figure presence and internalizing symptoms were evaluated. By comparing internalizing symptoms and youth with and without a father figure, this study aims to determine whether father absence correlates with increased mental health problems. Findings have implications for school professionals who play important roles in early intervention. Ultimately, this research seeks to enhance understanding of family influence on youths mental health.

CALEB COLLINS
University of Minnesota - Morris
Brain on Fire: Autoimmune Encephalitis Differential Diagnoses and Response to Treatment
Location: Optimist

It was once believed that the brain was exempt from immune activation. However, as research has advanced, we now know that could not be further from the truth. The brain has unique immune cells, and typical immune cells and proteins have been shown to have functions in normal development. The line between regular and potentially lethal immune activity is thin; the brain is as fragile as it is essential, and neuronal death cannot be fixed. Autoimmune encephalitis is inflammation of the brain caused by immune cells attacking host cells. The symptomatology depends on which part of the brain is being attacked, but one common theme is the need for urgent treatment. Even if a patient survives encephalitis, later treatment strongly correlates with long-term deficits. This literature review investigates some forms of autoimmune encephalitis and methods for professionals to diagnose and treat patients as fast as possible while still being accurate. Different conditions respond differently to frontline treatments, if they respond at all, and antigen testing can be slow, so it highlights ways to differentiate between conditions without antigen testing, allowing doctors to start treatment faster while they wait for test results to confirm the diagnosis.

SABRINA DIAZ BARNETT
University of Wisconsin - Whitewater
Managing More Than Blood Sugar: The Psychological Burden of Type 1 Diabetes
Location: Optimist

At the age of 15, I lost my mother to complications from diabetes. Today, I watch my younger brother, who also lives with type 1 diabetes, struggle to manage his health while facing severe anxiety, depression, and addiction. These deeply personal experiences have ignited my commitment to understanding the relationship between mental health and diabetes management. This research explores how mental health conditions, particularly depression and anxiety, affect the daily lives and self-care practices of individuals with type 1 diabetes. Existing studies show that psychological distress can significantly impair motivation, treatment adherence, and health outcomes. For many, the emotional weight of the disease is as burdensome as its physical demands. (Fisher, 2014) By combining research with my own lived experiences, this project brings attention to the need for care that treats both the emotional and physical sides of diabetes. As someone pursuing a career in social work, I believe it’s important to advocate for support systems that recognize how mental health impacts self-care. My goal is to help individuals and families better manage the daily challenges of diabetes with compassion, understanding, and access to the right resources.

JOELY HENRY
Wesleyan University
U Up? Examining Situationships and their Association with Body Image and Sexual Self-Esteem in the LBGTQ+ Community
Location: Optimist

Situationships, a term that emerged in the early 2000s, are characterized by ambiguity in emotional and romantic commitment. These relationships blur the lines between casual and committed, often featuring emotional intimacy without defined labels. However, there is a paucity of research on this emerging relationship structure within queer communities. Research on hookup culture, a more well researched sector of casual relationships, posits that casual relationships within the queer community operate differently from heterosexual relationships, and present distinct, positive outcomes such as lower minority stress (Jaffe et al., 2021; Kampler, 2022). Few studies look at associations between these casual relationships and other outcomes such as body image and sexual well-being. Body image literature regarding the LGBTQ+ community, in particular, has focused primarily on body image dissatisfaction (Dahlenburg et al., 2020; Muzi et al., 2023) and its negative impacts (Bajada et al., 2024), as opposed to relationship type and sexual self-esteem. Drawing from data from a larger mixed-methods comprehensive survey, this study examines the relationship between situationships, body-image, and sexual self-esteem, and also whether these relationships are different when comparing queer and heterosexual persons.

July 29, 2025 - 10:45 AM - Poster Session 1: Sociology and Public Affairs

LUNA COEN
Southern Oregon University
Effective Pedagogical Strategies and Their Impacts in Holistic Education Environments
Location: Optimist

My poster will show my findings of my qualitative study, Effective Pedagogical Strategies and Their Impacts in Holistic Education Environments, as well as my self-study observing holistic strategies and later implementing certain strategies. My research includes interviewing six directors or teachers who work in holistic learning environments—Waldorf, Montessori, Reggio Emelia, and other holistic schools—about the strategies that they use and how effective they are. The other part of my research is a self-study in which I will observe a Montessori school in Southern Oregon for two weeks and the last week, I'll implement strategies that I've found to be effective. I include a wide variety of studies in my literature review, some of which weren't based on schools within the United States, as this research is limited. My hope is that the interviews will allow me to hypothesize why certain strategies are effective in student success. I plan to account for limitations to my findings by understanding that my sample size is small and different branches of holistic education may have different outcomes. For the self-study part of my research, I'll take into account that the students I'll be implementing the effective strategies with will know me for only five days. Additionally, I understand that I have not had a sufficient amount of time to practice these strategies, which may affect my ability to implement them with fidelity.

VINA THOMPSON-EVERGREEN
Southern Oregon University
Best Practices for Pediatric Care Decision Making in Cases of Abuse
Location: Optimist

When a child needs or would benefit from a medical procedure in regards to abuse it may be difficult to determine who gets to decide what should happen. The purpose of the study is to perform a comprehensive descriptive literature review of best practice regarding the decision-making process to perform both forensic medical examination and emergency procedures. This will include how a provider should obtain and respond to child assent or dissent to a medical procedure, as well as how providers should interact with all parties involved in the potential decision making process. This would include determining how and when a child is allowed to make their own medical decisions, and what happens if it is determined they are not able to decide. At the time of this presentation research will be ongoing. This presentation will focus on the cursory observations about the current literature.

VIOLETA VALDEZ-SAMANIEGO
University of California, Santa Barbara
Navigating Higher Education: The Impact of Outreach, Advising, and Support Programs on First-Generation Latinx Students at UCSB
Location: Optimist

First-generation Latinx students continue to face systemic barriers in higher education, including financial hardship, limited access to mentorship, and lack of institutional representation. While Latinx enrollment has increased over time, gaps in retention and graduation rates persist. This study examines how outreach, academic advising, and institutional support programs impact the educational journeys of first-generation Latinx students at the University of California, Santa Barbara (UCSB). This project is currently in the preliminary stages and will be using a qualitative research design, that will consist of five to ten semi-structured interviews with currently enrolled first-generation Latinx students. This data will be analyzed by using content analysis and thematic analysis that will explore student engagement with campus resources, the impact of advising strategies, and perceptions of outreach efforts. The goal is to understand which support systems students find most effective and what gaps still exist in institutional services. By centering student experiences, this research aims to contribute to the development of more inclusive and proactive support structures in higher education. The findings will offer insight into how universities can better serve underrepresented student populations and promote long-term academic success for first-generation Latinx students.

July 29, 2025 - 10:45 AM - Psychology and Cognitive Science Breakout II: Panel B

ALEXA CONTERO
University of California, Davis
Barriers and Biases Impacting ADHD Diagnosis in Latino Youth
Location: Pathways

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental condition marked by inattention, hyperactivity, and/or impulsivity beyond developmental expectations. It is highly prevalent, affecting 11.4% of youth within the United States (Danielson et al., 2024). However, despite its high prevalence, most studies on ADHD diagnosis have focused on WEIRD (western, educated, industrialized, rich, and democratic) perspectives, overlooking cultural differences as well as structural and systemic barriers that communities such as Latinos may face when seeking timely ADHD evaluations. Consequently, Latino children are diagnosed at far lower rates compared to white counterparts. The purpose of this literature review is to clarify how cultural perceptions of ADHD within Latino communities influence average age of diagnosis. While prior studies have identified structural biases and systemic barriers, less is known about cultural differences which may impact the recognition of ADHD in Latino communities. By uncovering these factors, this review highlights the need for more culturally responsive outreach and evaluations to allow for earlier ADHD diagnosis in the Latino community.

CLAIRE O'QUIN
University of Texas at Austin
Sex Differences in Autism Diagnosis: Examining ADI-R Outcomes in the Latino Population
Location: Pathways

Autism Spectrum Disorder (ASD) affects 1 in 31 children and is 3.4 times more common in boys than girls. Latino children show a higher prevalence (31.6 per 1,000) than non-Latino white children (24.3), yet are diagnosed less often and face delays in receiving a diagnosis (CDC, 2025). ASD research has historically focused on male populations, leading to misdiagnosis or missed diagnosis in females. This gender bias has created gaps in our understanding of how autism manifests in women and girls. Brickhill et al. (2023) suggest that the tendency to associate autism with males contributes to structural inequalities in identification. Girls without intellectual or behavioral challenges are less likely to receive an ASD diagnosis (Dworxynski et al., 2012). Research such as Lai et al. (2011) highlights different symptom presentations between genders. Boys are more likely to display externalized behaviors—aggression, hyperactivity, or behavioral issues—whereas girls often present internalized symptoms like extreme shyness, anxiety, or depression (Hendrickx, 2024). These traits are frequently overlooked as they align with socially acceptable behavior, particularly in school or family settings (Dworxynski et al., 2012). This study explores potential gender bias in the Autism Diagnostic Interview-Revised (ADI-R), a widely used tool for diagnosing ASD from 12 months of age through adulthood. Focusing on Latino participants, the goal is to examine how diagnostic tools may contribute to underdiagnosis or misdiagnosis of autistic girls in this population.

MARICRUZ HUERTA
University of California, Los Angeles
Navigating Stress and Structural Barriers: The Experiences of Low-Income Latino Parents Raising Children with Autism Spectrum Disorder
Location: Pathways

Structural barriers such as healthcare access, socioeconomic challenges, and neighborhood disadvantage, shape how low-income families raising children with neurodevelopmental disabilities (NDs) experience and manage stress. Guided by Bronfenbrenner’s Social-Ecological Model, this mixed-methods study with quantitative surveys and qualitative interviews seeks to understand the stressors, resilience, and support networks of low-income caregivers (≤200% of the Federal Poverty Level) of children with Autism Spectrum Disorder (ASD). Participants will complete the Parental Stress Scale (PSS) and engage in semi-structured interviews exploring lived experiences with healthcare access, education, and social support. Quantitative analysis will identify stress patterns, while qualitative thematic analysis will uncover coping strategies and structural challenges. This study contributes to understanding the intersection of disability, socioeconomic status, and structural racism, offering insights for policy interventions aimed at reducing systemic stressors and promoting equitable and culturally-responsive healthcare and educational support for low-income Latino families.

MIGUEL SOTO
University of California, Los Angeles
Caras vemos, Corazones no sabemos. How Stereotypes and Perceptions Shape our Judgements on Intersectional identities within the Latinx Community.
Location: Pathways

Whereas previous work has shown that judgments of perceptually ambiguous social categories (e.g., sexual orientation) vary as an influence of perceptually clear social categories (e.g., race and sex), there is little research on how specifically Latinx identities vary as an influence on ambiguous social categories. The present research then examines how various perceptions and stereotypes overlap cognitively and shape judgments within the Latinx community. Study 1 showcases, through an implicit association task, when perceivers are thinking of Latino men they are more likely to closely associate them with straight/gender typed groups while for Latina women it was only for gender typed, with no difference in sexual orientation. Implying a new trajectory such that singular marginalized identities may be closely associated with other singular marginalized identities yet when combined create intersectional invisibility. Study 2 showcases through the visual perceptions of faces that when target faces were rated as more masculine, participants provided more straight categorizations for Latinx targets compared to white targets on average. However, the effect reversed when target faces were rated as gender atypical, such that participants provided more gay categorizations for Latinx targets compared to white targets. Collectively, these findings begin to unpack perceptions of intersectional identities to further understand the mechanisms by which perceivers make judgments about Latinx identities.

July 29, 2025 - 10:45 AM - Psychology and Cognitive Science Breakout II: Panel C

ALAIZA MATA
University of Texas at Austin
Acculturation and its Relation to Internalized Mental Health Symptomatology of Hispanic College Students
Location: Catalyst

The Hispanic population in the United States has increased over the last 20 years, making it one of the largest ethnic groups in the country. The increase in the population size may be attributed to the influx of Latin American immigrants. Drivers of migration include economic and educational mobility. Many immigrants see education in the US as a pathway to socio-economic mobility, which has led to Hispanic populations attending university at higher rates over time. Despite an increase in Hispanic university attendance, the significant gap in college enrollment and graduation compared to their racial and ethnic counterparts persists. Acculturation has been noted as a predictor of positive academic performance, influencing how Hispanic students simultaneously engage with and adapt to their educational environment. Hispanic students have been found to experience symptoms of depression and anxiety at higher rates. This research aims to explore the effects of acculturation, internalized, and externalized mental health symptomatology of Hispanic students at a public university in South Florida across a 12-day span. Most studies on the effects of acculturation have been longitudinal or cross-sectional. Examining acculturation and fluctuation on a day-to-day basis allows researchers to better understand how Hispanic students' anxiety, depression, and psychological well-being behaviors fluctuate during shorter periods of time throughout the semester. Results indicated that Hispanic students who felt comfortable partaking in US practices displayed better outcomes for psychological well-being. Hispanic students who felt comfortable partaking in US and Hispanic practices displayed less depression and anxiety symptomatology.

ALEXANDER DANIEL LOPEZ RUIZ
Westminster University
Practices of Confianza in Higher Education
Location: Catalyst

Guided by LatCrit and Yosso's (2005) Community Cultural Wealth framework, this study explores how confianza, a cultural value rooted in trust, connection, and mutual respect, influences the college experience of Latine students in higher education. While confianza has been studied within K-12 settings, few studies have examined how Latine students build confianza in higher education spaces and its impact on their experiences and college outcomes. Through two group interviews, each consisting of 7-8 self-identified Latine undergraduate students, this study will examine the role of confianza in fostering belonging, advocacy, and resilience . By using a critical thematic analysis approach, patterns and common themes will be isolated in order to understand the role that confianza plays in the experiences of Latine students in higher education. With my study, I am to offer insights into how institutions can better support diverse Latine student populations through culturally responsive practices, and research approaches that are rooted in their cultural values that will continue to uplift and support Latine students.

CASSIDY RICH
University of California, Riverside
Investigating Mental Health, Racial and Ethnic Identity, and Cultural Environment for Black Students in Higher Education
Location: Catalyst

Racism and discrimination may exacerbate mental health difficulties among Black college students (Bravo et al., 2021); however, cultural assets (e.g., ethnic and racial identity, and affinity spaces) can be protective (Volpe & Jones, 2023). This study examines the mental health outcomes, cultural assets, and cultural experiences of Black students in higher education via survey data and an open-ended narrative prompt. Seventy-five self-identified, Black/African/African American students completed an online survey via Qualtrics in Spring 2022 (n = 43) and Fall 2023 (n = 32). Participants were recruited from a larger study investigating students' identity, experiences in life and school, mental health, and well-being. The research questions were: 1) Are domains of ethnic and racial identity (e.g., exploration and centrality) associated with mental health outcomes? 2) Do these psychological factors differ by age, year in college, and cohort? 3) What cultural experiences do Black students have in college? Bivariate correlations suggest that ethnic and racial identity domains were not associated with mental health outcomes, and these factors did not vary by age or year in college. Contrary to expectations, students' self-reported mental health symptoms did not differ by cohort. Qualitative analyses revealed the following themes and cultural experiences: intergroup friendships, discriminatory treatment, importance of representation, cultural resources, meaning-making, and multiracial identity development. This mixed-method study advances the literature by investigating the psychological outcomes of Black college students in relation to their cultural context. These findings have implications for future research and interventions aimed at promoting flourishing among Black college students.

ALONSO RODRIGUEZ VILLALOBOS
University of California, Davis
How do Latine transfer college students at UC Davis navigate cultural stigmas when seeking mental health resources?
Location: Catalyst

Latine students represent a large and growing portion of students in US universities. Research shows that Latine college students face a range of stressors, including struggles with accessing mental health resources. These stressors come from many of these students experiencing discrimination, racism and stigmas. In general these can be exacerbated among transfer students, who often experience transfer shock. This study investigates how Latine transfer students navigate cultural stigmas associated with accessing mental health resources. It also seeks to understand how students deem when they should seek mental health resources. The study aims to recruit 3-5 research participants at UC Davis who self-identify as Latine and as transfer students. Interview guidelines aim to build a deep understanding of the student's cultural background and the ways their cultural heritage impacts their interaction with campus mental health resources. The goal is to be able to bring awareness on how mental health services are perceived at UC Davis to be able to more effectively market and provide services for Latine students.

July 29, 2025 - 10:45 AM - Sociology and Public Affairs Breakout II: Panel B

JESSIE PHILIPS
Truman State University
Governance Under Scrutiny: Corruption's Influence on Public Trust in Law Enforcement
Location: Discovery

Rising global corruption continues to erode public trust in governmental institutions. This lack of public trust can extend throughout the system, even to faith in domestic law enforcement. This research investigates whether individuals residing in countries with higher levels of public sector corruption tend to have lower levels of trust in the police. This research aims to look at this correlation while taking additional factors into account and providing a more comprehensive model. The initial hypothesis is that higher levels of corruption lead to lower public trust in law enforcement. The model includes structural variables, such as a country's levels of democracy and wealth, as well as individual-level data from respondents, including personal levels of wealth, education, perception of crime, and experience with crime. An Ordinary Least Squares regression model is estimated using data from the World Values Survey Wave 7 (2017-2021) and Transparency International's Corruption Perceptions Index (2017-2021). The link between corruption and trust in the police was estimated along with variables of GDP per capita, education level, perceived crime rates, and a country's level of democracy. The hypothesis was supported, as the relationship between corruption and trust in the police was found to be negative and statistically significant. All the other variables were significant, though the adjusted R-squared was low. These findings show that corruption does affect public trust, but it does not operate in isolation.

MAYANNA WEED
Truman State University
What are the effects of student perceptions on correctional officers?
Location: Discovery

The criminal justice system is a complex institution composed of a variety of occupations, and all are heavily scrutinized in the media and by the public. Multiple factors influence individuals' perspectives when it comes to the criminal justice system. Influences span the media, personal knowledge, and experiences of friends and family. Prior literature has centered on perceptions of the police, but less has looked at correctional officers and other lesser-known law enforcement agents. This project tests two hypotheses: first, that people who have worked in these institutions, or know people who have, will have more positive attitudes towards them and their roles. Second, that anyone who has been incarcerated for more than one week, or who has had a friend or family member incarcerated for more than one week, will have negative attitudes towards correctional officers and their roles. This will be tested using a mixed-methods approach, involving both surveys and interviews. This study also includes controls for legal legitimacy and the types of entertainment media that respondents may consume, which could influence their perceptions of correctional officers and their jobs.

NEVAEH EMERICH
Bowling Green State University
What is a School Shooting?
Location: Discovery

School shootings are a hot topic in the media and an important discussion among citizens of the United States. Despite this, the government does not collect data on school shootings and has left it to lay people and researchers to create their own data sources largely culled from media reports. In the present study, I compare two popular datasets, the K-12 School Shooting Database collected by Riedman (2025) and school shootings data collected by reporters at the Washington Post, that claim vastly different numbers of school shooting incidents over time. I examine incidents since the Columbine shootings in 1999 and focus on how reported incidents have changed before and after the Sandy Hook shootings in 2012. Results suggest that the number of school-related shootings have increased over time, but the size of the increase depends greatly on the definition of "school shooting." Part of the recent rise in what are reported to be "school shootings" may be due to a more expansive definition of school shootings than before. For example, a larger percentage of incidents post – Sandy Hook occurred outside of the school building, outside of school hours, and did not involve any physical injuries. Some of these incidents likely existed in earlier years but would not have been identified as school shootings. I discuss the importance of establishing clear definitions in the media to avoid the creation of a moral panic and the need for systematic data collection independent from media sources.

SEQUOIA MONTAGUE
Fayetteville State University
Examining the Context and Consequences of Officer-Involved Homicides of Young Children, 2013-2017
Location: Discovery

This research employed a case study methodology to collect and analyze data through publicly available internet sources, regarding 18 officer-involved homicides that occurred between 2013-2017. The study represents a reexamination and expansion of prior research that focused on incidents involving victims below the age of 18. The focus of the current research was victims below age 13. The study examined the circumstances under which such homicides occurred, and the legal and departmental consequences officers faced after causing the deaths. The study fills a gap in the existing literature that primarily centers on adult and teenage populations. Preliminary findings suggest that young children are killed under two primary set of circumstances: domestic situations, where an officer who is a parent is responsible for the death of his/her own child; and, enforcement situations, where a child is killed in the course of a criminal investigation or apprehension. Regardless of the context, most officers retain their jobs and do not face criminal charges. Conversely, in most cases, there is a finding of civil liability. The objective of this research is to enhance understanding of these events and to produce new knowledge that can be used in the design and expansion of prevention strategies.

July 29, 2025 - 1:30 PM - Clinical Medicine, Dentistry and Public Health Breakout III: Panel A

MARYELYSEE MOUNGOWOOLFORD
Truman State University
Undergraduate Students' Awareness of Maternal Mortality in the United States
Location: Pinnacle

According to the Centers for Disease Control and Prevention (CDC), maternal mortality disparities, or differences in the rates of maternal mortality among certain populations, are a particular concern. The maternal mortality rate in Black women has increased, at the same time it has decreased for other racial groups. This study investigated the awareness level among undergraduate students from a variety of majors with a range of professional aspirations about maternal mortality rates and the associated disparities in the United States (U.S.). Seventy-two undergraduate students from a medium-sized public, Midwestern university participated in this study by completing an online survey. The survey included demographic questions, academic major, and professional aspirations. Respondents answered questions about maternal mortality rates and factors linked to maternal mortality in the U.S. The framework of the Community Readiness Model (CRM) was used to determine the campus stage of readiness based on the reported levels of awareness. Analysis of the survey responses indicated most students recognized health disparities related to maternal mortality are a problem in the U.S. This student data, in conjunction with other community factors such as the leadership and activities of the Office of Community Enrichment, led to a determination that the community was in the Preplanning stage of readiness. These results inform efforts to move the community into the Preparation stage in which decisions will be made about the evidence-based advocacy actions to address maternal mortality disparities at the state and federal levels.

BRIONNA HARDEN-CHAMPION
Bowling Green State University
Built to Move : Rethinking Recovery
Location: Pinnacle

Osseointegration is a surgical technique that allows for the direct skeletal attachment of a prosthetic limb, offering a modern alternative to traditional socket prostheses. While socket prostheses remain widely used, they are often associated with issues such as skin irritation, poor fit, discomfort, and limited mobility, which can negatively impact an amputee's daily life and independence. The current study explores the full recovery timeline of osseointegration, beginning with surgery and continuing through rehabilitation and eventual functional prosthetic use as compared to the traditional socket prostheses process. A comprehensive review of current literature was conducted, drawing from case studies and long-term clinical data from the United States but also primarily from Sweden and Germany, where osseointegration is more commonly practiced. Results suggest that osseointegration may offer improved outcomes in prosthesis comfort, mobility, and wear time. Patients often report a greater ability to perform daily activities with less discomfort and fewer skin complications. However, challenges such as risk of infection, the need for multiple surgeries, limited access in the United States, and lack of insurance coverage remain significant barriers. Understanding the timeline to recovery is crucial for setting patient expectations, guiding rehabilitation protocols, and expanding access to this promising approach in prosthetic care.

AISHA FAQID
University of Minnesota - Twin Cities
Automated Detection of Voice Disruptions in Adductor Laryngeal Dystonia
Location: Pinnacle

Adductor Laryngeal Dystonia (AdLD) is a neurological disorder that causes vocal fold spasms during speech. This results in voice disruptions that cause reduced intelligibility and a breakdown of communication. This disorder has no cure, and from the patient's perspective, this means symptomatic treatment with injections of botulinum toxin (BTX) every 3-4 months. A key barrier to improving treatment is the difficulty of objectively and efficiently evaluating the efficacy of new interventions. The current gold-standard approach involves manually measuring voice disruptions, which is both time-intensive and susceptible to human error. The use of automated detection to identify and measure disruptions could address this by increasing the objectivity and efficiency of voice analysis in AdLD. The purpose of the current study is to determine the accuracy of automated detection of voice disruptions. Manual analysis will be completed by three human raters. Accuracy of automated detection will be measured with intraclass correlation coefficients between the automated detection and manual measurements. Results will help determine whether this tool can be used in the analysis of voice for treatment response monitoring in AdLD. This could aid the development and assessment of more novel interventions.

VALERIE OWUSU-HIENNO
University of Oregon
Investigating The Effect of Thiamine Supplementation on The Quality of Mother-Infant Interactions
Location: Pinnacle

Thiamine (Vitamin B1) is an essential micronutrient crucial for multiple physiological processes. Deficiency is common in areas where diets depend heavily on polished white rice. Sub-clinical levels of thiamine deficiency undercut infants' neurocognitive development, with negative consequences for health and socio-cognitive functioning. My project is conducted within the context of a recent randomized, controlled trial in rural Cambodia. 335 breast-feeding mothers received daily thiamine supplementation of either 0mg (placebo), 1.2mg, 2.4mg, or 10mg from 2 to 24 weeks post-partum. Findings confirmed that maternal thiamine supplementation protects at-risk infants' neurocognitive development. What remains uninvestigated is how thiamine supplementation may influence playful mother/infant interactions, which are known to benefit infants' health and well-being. Mothers and infants participated in the Primary Engagement Task (PET) at 2, 12, and 24 weeks post-partum; mothers attempted to coax a smile from the infant with graduated cues to playful engagement. Mothers' playful engagement is rated on six dimensions; eye contact, facial and vocal engagement, tactile interaction, affective signaling, and contingent responsiveness. We predict a significant quadratic pattern in mothers' engagement ratings across the PET, and higher maternal engagement ratings as infant age and thiamine dose increase. Results of this project hold the potential to shape health policy by bolstering the case for population-level intervention to prevent thiamine deficiency in at-risk regions globally.

July 29, 2025 - 1:30 PM - Engineering Breakout III: Panel A

OBERT VONGSAVANH
University of California, Davis
Direct Sound Printing (DSP) Technology
Location: Odyssey

Direct sound printing (DSP) is a new additive manufacturing process which utilizes sound waves as a driving energy source instead of the conventional heat or light-based methods. This is done through inducing sonochemical reactions in localized cavitation regions using highly focused ultrasound. Advantages to these methods include a wider range of materials to print with, greater energy penetration depth allowing for more isotropic prints with fewer layers, and remote distance printing (RDP), where solid material can be cured across opaque barriers or through walls. While most thermoset polymers require post-process curing time, experiments notably using Polydimethylsiloxane (PDMS) resin demonstrated near-instant formation, skipping the process entirely. Holographic Direct Sound Printing (HDSP) also works as a method to improve print speed and efficiency using acoustic holography, elevating the previously voxel-by-voxel one-dimensional process to multiple dimensions while still using a single transducer. Applications for DSP include remote in-body printing (implants) and composite materials featuring metallic particles. Studies of DSP prints using sonochemiluminescence (SCL) showed near identical material properties to thermally cured counterparts, highlighting the expanding capabilities of sound-based printing systems that rival existing technology.

HAMZE MOKTAR
Augsburg University
Semantic Similarity in Computer Programs Using Large Language Models (LLMs)
Location: Odyssey

Large Language Models (LLMs) are machine-learning models that are trained to understand, predict, and generate human-like text by learning statistical patterns and contextual relationships within language. In recent years, the rapid advancement of LLMs has significantly impacted several areas within artificial intelligence, particularly in natural language processing (NLP) and computer program analysis. LLM-based computer program analysis involves tasks such as error detection, code generation, and identifying structural similarities between pieces of code. These tasks leverage the models' ability to interpret programming languages as a form of structured text, enabling new approaches to analyzing and understanding code. This research project aims to explore and evaluate the capability of LLMs in assessing the semantic similarity between pairs of Python functions. Specifically, it seeks to determine how effectively an LLM can recognize when two pieces of code perform the same or similar functions, even if their syntax or structure differs. This kind of semantic comparison is useful in applications such as plagiarism detection, code recommendation systems, and automated feedback in computer programming education. The current approach uses the Abstract Syntax Tree (AST) to extract the features of each function, which is then used as input to an LLM trained on code to get the embeddings. The results from both AST structural similarity and LLM embeddings are then combined to calculate the final semantic similarity between two functions.

TAMIA WARE
Knox College
Flow in Game Design: A Transmedial Experience
Location: Odyssey

Despite our technologically-focused society, research has shown that the rise of digital games has not forced analog games to cease existing. This suggests that there may be factors in analog games that may not be transferable to the digital versions. Literature shows other tools currently exist for solely digital games or analog games, but none that can measure both effectively and accurately. The Games Experience Questionnaire (GEQ) is a commonly used user experience (UX) tool while playing a digital game, but may be adaptable to measure experience playing analog games. This project seeks to answer the following questions: Which factors of flow (simply defined as an in-the zone state) are affected the most when converting a board game into digital format and vice versa? What changes could be made (in terms of elements of flow) to make them equally or more enjoyable? How does this insight allow new UX tools to be developed to measure enjoyment or flow? This mixed-methods study intends to investigate these questions by having participants play analog and digital versions of UNO and Tetris and later complete a modified version of the GEQ. This can help determine whether flow was achieved and understand the positive and negative areas of their experience. The goal of this project is to give insight for game developers into how they could conserve the essence of the original version of a game when translating it into another format to provide consistent or improved enjoyment.

REIER ERICKSON
University of Minnesota - Twin Cities
Familiarity Breeds Acceptance? How Prior Technology Use Influences Attitudes Toward Robot Use in Natural Environments
Location: Odyssey

As robotic and automated systems (RAS) become more common in natural resource management, understanding public acceptance of these technologies in nature-based settings is important. This study investigates whether prior use of RAS influences acceptance of low-cost, open-source autonomous underwater vehicle (LoCO AUV) designed to monitor water quality and aquatic invasive species (AIS). A representative survey of Minnesotans assessed how often respondents used select automated technologies (e.g., robotic vacuums, drones), how acceptable they found LoCO AUV's use in monitoring, and the relationship between the two. Results showed that LoCO acceptance for water quality monitoring varied across levels of prior technology experience: those with low to moderate levels of technology use were more accepting than those with no experience, while those with greater experience were significantly less so. A similar, but non-significant finding was present in the relationship between technology use and acceptance of robotic AIS monitoring. Findings suggest that some exposure to technology may encourage more acceptance of RAS in outdoor settings, but at some point, exposure leads to significantly less acceptance. This study contributes to a growing understanding of the perceived acceptance of RAS in nature-based settings by highlighting the relationship between technology familiarity and public attitudes. Further, it emphasizes the need to consider public experience when integrating RAS into these settings, as it varies and is complex.

July 29, 2025 - 1:30 PM - Humanities Breakout III: Panel B

GODWINA OGBEIDE
University of California, Los Angeles
Decoding Motives: The Intersection Between Race, Media, and Mass Shootings
Location: Innovation

With over 500 mass shootings in the U.S. last year alone, these tragedies are no longer shocking—they're expected. While the country remains stagnant in addressing one of its most urgent public health and social crises, media narratives, shaped by racial bias, fixate on the identity of the person who committed the shooting rather than the victims or the systemic issues fueling the violence. This study explores three key questions: (a) What sociological and psychological factors contribute to the radicalization and deviant behavior of individuals who commit mass shootings? (b) What factors do the media focus on in their coverage of mass shootings? (c) How do these media portrayals vary based on the race or ethnicity of the shooter? In answering these questions, this research draws from racial formation theory, framing theory, and general strain theory, while also considering adverse childhood experiences. Through an in-depth review of motives by the shooter and media narratives, this study seeks to provide a more comprehensive understanding of mass shootings. It critiques how the media portrays the intentions behind the shooting as well as the identity of the shooter, and shapes public perceptions of criminality. This study contributes to discussions on racial bias, policy reform, and the need for equitable approaches to crime prevention and public safety.

ORISHA LAMON
University of California, Los Angeles
Uncovering Allensworth
Location: Innovation

Allensworth was founded in 1908, making it one of the first Black freedom colonies in California. Founders envisioned it as the Tuskegee of the West, most known for its self-governing nature, utopian ideals, and focus on African American self determination and progress. This paper answers the question: How does California's history of liberalism and colonial violence lead to our understanding of Black resistance and efforts of repair, such as reparations? This paper looks at the logics of settlerism through analysis of historical newspapers, public pamphlets, oral histories, community memory, and biographies of the founding colonel. At the same time, I also argue that the destabilization of Allensworth is due to California statecraft that facilitates dispossession and coercion under the guise of moral liberalism. The final section will look at the contradictions within the black colonization project and settlerist ideology, suggesting that state aligned practices of memorialization and reparation merely mediate the demands requested from the current and descendant community.

DAVID HOUSTON
University of California, Los Angeles
"Negotiating Survival: Black Women, Sex Work and Systemic Oppression in Los Angeles (1910-1940)"
Location: Innovation

This research study examines the historical and systemic conditions that led to the overrepresentation of African American girls and women in the sex trade in Los Angeles during the “era of the” Great Migration. Throughout my research, I use the terms Black and African American interchangeably to describe American descendants of Africa. The Great migration was the largest movement of people in U.S. history lasting from 1910-1970. During this time, millions of African Americans moved from the South to Northern, Western and Midwestern cities. Hundreds of thousands moved to Los Angeles with the hope, not only of escaping the violent repression of the South, but of finding greater social, political and economic opportunities. African Americans initially found Los Angeles to be a kind of paradise. They faced comparatively less physical violence, could vote, were able to buy homes, and their children received a better quality of education. However, when their numbers began to increase so did discriminatory practices and policies aimed at impeding their progress. I posit that despite having greater prospects for things like schooling, housing, political participation and jobs, the Black communities in Los Angeles, particularly the women, faced the intersectional barriers of racism, classism, sexism, and economic oppression. These conditions forced many into sex work and left them susceptible to disproportionate criminalization by a corrupt LAPD. The questions guiding this study, therefore are, what economic & racial factors influenced sex work for Black women in LA (1910–1940), how were Black sex workers treated by law enforcement and the justice system, and what stereotypes or ideologies justified their criminalization? This social historical study is grounded in Critical Race Feminism and relies on archival research, in the form of historical documents, newspaper archives, police records, and academic literature, to uncover the racialized and gendered dynamics of sex work in early Los Angeles. This study is significant because it centers the lived experiences of marginalized Black women giving voice to a population often left out of mainstream consciousness, while offering historical context to contemporary forms of Black criminalization and community stigmatization.

NYLAH WINCHESTER
Southern Oregon University
Literary Whiteness and The Oppositional Gaze: Magdalene’s Characterization in The Mountain Lion
Location: Innovation

This presentation examines the characterization of Magdalene, the Black domestic worker in Jean Stafford’s The Mountain Lion, through the lenses of Critical Race Theory (CRT) and bell hooks’ concept of the oppositional gaze. The novel primarily follows Molly and Ralph’s coming-of-age journey within a white frontier setting, but Magdalene’s presence exposes the racial and labor hierarchies that sustain this setting. Her labor is essential to the household’s function and the children’s experiences of the West. Using CRT, the presentation argues that Magdalene’s dehumanized portrayal reflects the systemic nature of racism in literature, where Black characters are visually othered and rendered invisible in terms of agency. However, through hooks’ theory of the oppositional gaze, Magdalene’s silence and “watchful” presence become a site of resistance that challenges the white gaze. By analyzing Stafford’s racialized imagery, particularly through Molly’s fearful and grotesque descriptions of Magdalene, the presentation also connects to Katie Collins’ work on defacement in Stafford’s fiction. This study highlights how a character like Magdalene can reveal racial ideologies embedded in Western American literature.

July 29, 2025 - 1:30 PM - Poster Session 2: Biology

MIGUEL BARRON
University of California, Santa Barbara
Exploring Theta Phase Coordination Between the Anterior Thalamus and Retrosplenial Cortex During Contextual Memory Formation
Location: Optimist

The retrosplenial cortex (RSC) plays a central role in contextual memory and navigation, linking the hippocampus and anterior thalamic nuclei (ATN). Theta oscillations (4 to 12 Hz) are thought to temporally coordinate activity across this limbic network to support memory encoding and retrieval. While the hippocampus and ATN exhibit continuous theta rhythms, the RSC and the anteroventral nucleus (AV) of the thalamus engage more transiently, raising questions about the timing and function of these bursts. Preliminary data from a single rat tested in Julia Brzac's contextual cheeseboard task, where visual cues indicate distinct spatial memory contexts, suggest a possible temporal lag in theta activity from ATN to RSC, which may reflect a timing-based influence or flow of information between these regions during learning. To further investigate this, we are refining the task to promote cue-dependent decision making under spatial and temporal constraints. Over the summer, we will test additional animals and record both local field potentials and theta-modulated single unit spiking activity during contextual learning. This study aims to address when and why theta coordination emerges across the ATN and RSC pathway, and whether these dynamics support successful memory formation. By linking precise neural timing to behavior, we hope to uncover how distributed networks use theta to structure learning-related computation and reveal a temporal coding mechanism for communication between the thalamus and cortex.

ANGEL MILAN-AGUILAR
University of Washington
Spatiotemporal Restriction of Plasmodium in Liver Stage Development by Type One Signaling
Location: Optimist

Plasmodium parasites, the causative agents of malaria, undergo critical development in the liver prior to their transition into the bloodstream, where all the clinical symptoms of malaria and transmission back into mosquito vectors occur. No highly efficacious malaria vaccines exist, but one promising vaccination strategy is immunization with whole parasite vaccines (WPVs) that are genetically modified and cannot complete liver stage development. We have shown that the type 1 interferon (IFN-1) signaling regulates the immune response induced by WPVs, leading to decreased protection in immunized mice against malaria. My project aims to spatially characterize how IFN-1 influences parasite development within the liver using immunofluorescence. Interferon-alpha/beta receptor knockout (IFNAR KO) mice that cannot propagate IFN-1 signaling and wildtype C57Bl/6 mice were infected with Plasmodium yoelli. We then harvested livers from infected mice throughout Plasmodium liver stage development. I stained tissue sections with fluorophore-labeled antibodies, imaged them with a confocal microscope, and analyzed them in Zen Lite Blue for size and location. I observed that IFN-1 restricts parasite development beginning at 24 hours post-infection but does not impact parasite size in infected cells. This may suggest IFN-1 results in decreased antigen mass from WPVs, resulting in decreased protection from future infection. Future studies will selectively eliminate IFNAR on hepatocytes or on distinct immune cells to identify if IFN-1-mediated parasite restriction is hepatocyte intrinsic or is immune cell-mediated. Identifying how to selectively impair IFN-1 in infected cells may lead to a more effective vaccine strategy.

OLIVIA SEWELL
University of Wisconsin - Whitewater
How can meditation be used to treat physical ailments among people with unknown long-term stress?
Location: Optimist

This study investigates why meditation works to alleviate physical ailments. The main factor that causes numerous physical ailments is stress. More specifically, long term stress that results in physical ailments such as muscle constriction, joint pain, breakdown of your skin and hair, immune disorders, and so much more. This research studies why focused meditation works to alleviate the stress induced pains. Our bodies have become so adapted to stress hormones that we don't realize the constant state of stress we are in until it is too late and these physical ailments begin to form. Quantitative methodology will be used to determine if those who practice meditation have significantly lower stress levels and physical pains than those who do not practice meditation. We hypothesize that those who meditate will have better biological equilibrium and do not experience as many physical ailments as those who do not meditate. This will be useful for preventative care as well as facilitating current physical pains or diseases for those who are currently experiencing it.

CARLOS ROMO
Wesleyan University
Lord of the Dyes: Synthesis of Functionalized BODIPY Fluorophores
Location: Optimist

Fluorophores typically consist of aromatic, pi-conjugated ring systems that emit light upon excitation. This fluorescent property makes dyes of this nature particularly valuable in tracers and imaging applications. Functionalized derivatives of these dyes may serve across interdisciplinary practices and benefit current, relevant research. This project seeks to synthesize a dye composed of a boron difluoride linked to a dipyrromethane group, otherwise known as BODIPY. The BODIPY molecule is subsequently functionalized with fatty acids and esters pertinent to research being conducted in Wesleyan's Chemistry department. The initial synthesis begins with the ring-opening of cycloheptanone, generating the base compound for ylide formation. An ylide is then formed using triphenylphosphine before undergoing addition with pyrrole-2-carboxaldehyde through a Wittig reaction. Hydrogenation of the alkene bond is required before further steps towards BODIPY formation can be completed. Acid-catalyzed hydrolysis is then performed to replace the ester with a carboxylic acid. However, in practice, ylide formation has presented problems as the Wittig reaction results in extremely low yield, indicating issues during the n-Butyllithium reaction. Further troubleshooting must be conducted to highlight the exact impediment. Upon completion, the Coolon Lab at Wesleyan intends to use the dye in their study of Drosophila fruit flies. Their project seeks to understand how one species, Drosophila sechellia, was capable of specializing on a host plant that contains defense compounds otherwise toxic to other sister species. In order to answer this question, toxin uptake and localization among different species can be performed and visualized with the fluorescent dye through fluorescence microscopy.

July 29, 2025 - 1:30 PM - Poster Session 2: Engineering

JOSELYN GUTIERREZ
Boise State University
Evaluating Coarse-Grained Models of Solution-Phase Aggregations
Location: Optimist

Colloidal suspensions are important industrially relevant materials, from milk, to paints, to advanced manufacturing inks. Unstable colloids will eventually aggregate and crash out of solution, so it is essential to understand the thermodynamic stability of colloids used for specific applications. In this work we consider a model of nanoparticle flakes that are suspended in solution with linear copolymers. In experiments, the flakes are observed to crash out of solution above a weight percentage of about 7%. Here we develop a phenomenological model to represent the shape, size, concentration, and molecular interaction components of the experimental system. We investigate the aggregation behavior of the flakes as a function of their shape, size, concentration, and interactions relative to the copolymers with the aim of mapping a phase diagram of thermodynamic stability. En route to that we report on successes and challenges deploying our model on laptop and high performance cluster hardware and summarize the aggregation behaviors observed thus far.

SASHA ARASHA
St. Olaf College
Skew commutative invariants in Macaulay2
Location: Optimist

Macaulay2 (M2) is a Computer Algebra System utilized in several fields of mathematics for computations involving commutative rings. The primary research goal is to develop an algorithm for calculating the invariants of finite group actions on skew commutative polynomials. The research group initially focused on the study of invariant theory to form a research basis to explore Dr. Francesca Gandini's work on degree bounds for skew commutative invariants. This study can then be used to develop the respective algorithm in M2 for the InvariantRings 3.0 package. Particularly for finite groups, there are known degree bounds for invariant skew polynomials in the exterior algebra which inevitably results in termination of our computational recipe. The algorithm has a planned release for the October 2025 release of M2.

July 29, 2025 - 1:30 PM - Poster Session 2: Humanities

LAKSHMI GARCÍA
University of California, Santa Barbara
Educational Pláticas: The Role of Sibling Storytelling in Hispanic First-Gen Success
Location: Optimist

In this study, I use the pláticas methodology and Latina feminist storytelling to explore my relationship with my younger sister as a lens into the emotional and cultural complexities of navigating education as a first-generation Latinx student. Through educational pláticas, I reflect on the intimate conversations we've shared, moments where themes of internalized racism, privilege, body image, and relationship dynamics, both within and beyond school, repeatedly emerged. These dialogues have become sites of learning, resistance, and healing, revealing how dignity and social mobility are both gained and compromised in the pursuit of education. By analyzing how the aforementioned topics reveal themselves in classrooms and through our pláticas, we see how they shape and impact the engagement with our peers, ourselves, and our families. Our stories expose the paradoxes of schooling which offer the promise of advancement while distorting our sense of self and connection to home. This work contributes to the field by expanding what counts as educational and narrative research, centering siblinghood and cultural memory as legitimate sources of knowledge. By blending personal narrative with ethnographic inquiry, I offer these educational pláticas not only as testimony, but as a call for institutions to recognize and sustain the humanity of first-generation Latinx students, particularly those navigating the unseen spaces between sacrifice and survival.

JOEY BUTCHER
University of Alaska, Anchorage
Melancholia
Location: Optimist

Melancholia is an original composition initially conceived in 2022. As my piano proficiency and mastery of music theory expanded over the next three years, I began to fully conceptualize its purpose and realize what I wanted to do with it, resulting in this composition.

THOMAS ZEMPEL
University of Minnesota - Morris
Reclaiming traditional food sources: Guide on how to achieve food sovereignty in Dakota communities in Minnesota
Location: Optimist

This research focuses on pathways which tribal communities in Minnesota can take to achieve food sovereignty and food security with a main focus on reclaiming traditional food sources. This research will try to find pathways in which Dakota communities bolster food sovereignty efforts by analyzing and adapting what other tribal communities and Dakota communities have done towards their own food sovereignty efforts. This project mainly consists of literature review, focusing on historical disruptions to Indigenous food systems, the impacts which colonization had on Tribal Nations, and how federal policies have impacted Indigenous food sovereignty. Through this lens, this research will examine the broader concepts of food justice, sustainability, and Indigenous rights, positioning food sovereignty as a crucial step toward cultural revitalization and maintaining tribal sovereignty. To supplement the literature review, this research involves a couple of interviews with people who are actively working to restore traditional food practices and knowledge. Those first hand accounts will offer critical insight into strategies communities are currently using along with the challenges which they have faced along the way. By combining academic research with community voices, this project seeks to highlight practical approaches that support Indigenous food sovereignty in tribal communities in Minnesota.

July 29, 2025 - 1:30 PM - Poster Session 2: Psychology and Cognitive Science

SAILOR NELSON
Boise State University
More Than an “Anxious” Generation: How Value Systems Anchor the Human Experience
Location: Optimist

Experience is the key to everyone’s emotional development, rather than knowledge and information gathering (Haidt, 2024). This study, conducted under Dr. April Masarik’s 'Human Universals Project' in the Human Development and Ecology Lab, explores shared human values and life philosophies across generations – challenging the idea that moral differences are solely generational. Using Jonathan Haidt and Jesse Graham’s Moral Foundations Theory and Braun and Clarke’s (2006) thematic analysis, I’m analyzing student autobiographical narratives from a PSYC 419 course (n = 94) to identify how value systems develop and function. In previous literature reviews and analyses, nine core themes emerged. A tenth theme has surfaced as data collection continues: “value systems ground us.” This multifaceted theme shows that values often serve as support systems, whether through fantasy, habit, or coping, in helping people navigate adversity. This finding is supported by Dr. Becky Kennedy’s parenting research, referencing Ronald Fairbairn: “for kids, it’s better to be a sinner in a world ruled by God than to live in a world ruled by the Devil” (2023). Even in maladaptive environments, belief systems offer structure and psychological security. This IRB-approved study is ongoing, with participant consent being collected for quote publication. Ultimately, this work highlights how iterative and ever-evolving value systems are as we aim to bridge the divide of intergenerational awareness and understanding, hoping to encourage a greater empathy for others.

PENELOPE LEE
California State University, Stanislaus
Destigmatizing Harm Reduction: Evaluating an Educational Intervention in Stanislaus County
Location: Optimist

Harm reduction is a set of evidenced based interventions aimed to reduce the harms associated with substance use disorder. Despite the evidence supporting the harm mitigating effects of harm reduction, widespread stigma has limited support and implementation of services in many communities. Destigmatizing harm reduction is a critical step towards addressing the substance use epidemic facing the United States. In this study, I will examine the efficacy of an educational video intervention, created in collaboration with harm reduction coalition Valley Streetz, for reducing stigma towards harm reduction amongst Stanislaus County, CA residents. The video features interviews with medical doctors, harm reduction volunteers, and individuals who receive services from Valley Streetz. The study will be hosted on the CSU Stanislaus online survey platform, SONA. Participants will be residents of Stanislaus County recruited through the SONA platform and social media channels. The study employs a pretest-posttest design using the Perceived Stigma of Substance Abuse Scale (Luoma et al., 2010) and the Harm Reduction Assessment Scale (Goddard, 2003) to measure changes in attitudes. After completing the study, participants will receive a $10 gift card and be given the option to donate a portion of their compensation to Valley Streetz, allowing me to assess willingness to support local harm reduction efforts. I predict that the intervention will be an effective tool for reducing stigma and increasing community support for harm reduction initiatives.

SOPHIA CHAVEZ
Loyola Marymount University
Effects of Yoga on Multisensory Perception
Location: Optimist

Yoga has become a common practice for physical and mental health interventions, especially in patient populations and the elderly who have balance and mobility concerns. To date, there have been few studies concerning the sensory effects of yoga on college student's sensory re-weighting and no study on the multisensory effects after yoga training. For this study, a pre-and post-test will be conducted on students at the start of a beginners' yoga class and at the end of the class following 10–12 weeks of consistent yoga practice 2 hours a week. To measure changes to balance, students will be subjected to balance tests using a Wii Balance Board with eyes open and closed, on a firm or foam surface and practicing specific yoga poses which will determine postural sway and use of vestibular cues. Additionally, the Rod and Frame test conducted using a virtual reality headset will determine visual field dependence (i.e. the relative reliance on visual cues). Use of proprioceptive cues will be determined using the threshold of detection to passive motion of their limbs. By comparing the results from before and after taking the beginner yoga class, we will determine if yoga has the ability to improve the balance of college students and train the body to use visual, vestibular, and proprioceptive cues more effectively.

ELLIOTT SHURTZ
Southern Oregon University
Enhancing Sustainable Empathy
Location: Optimist

This project is designed to gather insight into failures of empathy and how it could be addressed through improvements in compassion meditation practices. Previous research suggests that people actively choose to feel apathy when they perceive that empathy is too costly or difficult. Other research suggests that people can engage in empathy with support of compassion meditation, but no existing work has looked at sustained empathy over multiple trials or at the psychological mechanisms underlying sustained empathy Participants of this project will take the Empathy Selection Task (EST), which involves decisions to engage in empathy over 40 trials. Participants will then complete seven days of meditation sessions, then take the EST again to assess changes. The meditations are split into three randomized conditions: loving kindness, relational, and a placebo control. Relational meditation helps one develop a secure base by thinking of receiving care from a benefactor, which might increase feelings of safety and support. We hypothesize that relational meditation will show the most improvement in one's willingness to choose empathy as shown in the EST, followed by loving kindness meditation, then placebo control. We will employ a one-way ANOVA to search for significant differences in the pretest and posttest for each individual, condition, and for the study population as a whole. After this study has concluded, we plan to employ another study expanding on the effects of relational meditation.

JULLIAN DOWARD
The College of St. Scholastica
When Regulation Isn't Enough: An Examination of the Association between Emotion Management Skills and Relationship Burnout
Location: Optimist

Research on relationship burnout (i.e., a psychological syndrome characterized by emotional exhaustion, depersonalization, and a reduced sense of personal efficacy) has focused almost exclusively on the interpersonal antecedents (i.e., infertility, parenting stress, infidelity), overlooking the impact of individual traits (e.g., emotion management (EM)). Given the emotional demands inherent in romantic relationships, the ability to manage emotions effectively may play an important role in mitigating relationship burnout. Thus, we sought to determine whether those more skilled at managing their emotions would report lower levels of relationship burnout than those less skilled. A total of 175 adults (76 men, 94 women), who were currently in a romantic relationship, were recruited via Prolific (an online crowd-sourcing website). All were tasked with completing the 44-item Situational Test of Emotional Management and a 7-point item assessing relationship burnout. Our results revealed a mean burnout score of 2.72 (SD = 1.73), suggesting fairly low levels of burnout. Contrary to our hypothesis, there was not a significant association between EM skills and relationship burnout ($r = -.011$, $p = .16$). These findings indicate that EM is not a significant predictor of relationship burnout. One explanation for the lack of association is that EM may not directly buffer against the deeper emotional exhaustion that defines burnout. Unlike transient conflict and dissatisfaction, burnout reflects a chronic depletion of emotional resources, which may be shaped more by external relationship stressors (e.g., role overload, chronic conflict) than internal regulatory capacity alone.

KIARA RIOS
University of Wisconsin - Whitewater
The Role of Family Context and Emotion Regulation in the Development of Academic Perfectionism
Location: Optimist

Maladaptive perfectionism refers to personal concerns over failures and other people's evaluations or criticisms, and is related to self-defeating behaviors, which include self-doubt, concern about others' evaluation, and constant worry about making mistakes that can lead to other problematic behaviors. However, minimal research has investigated the antecedents of perfectionism, and even less has examined these among college students, who are at particular risk for developing maladaptive perfectionism. A growing body of research suggests that having poor relationships with parents and having poor emotion regulation skills may be linked to the development of perfectionism and similar constructs like academic anxiety, yet these possible antecedents have not been examined concurrently. This study examines associations between emotional neglect from mothers and emotion regulation skills, and maladaptive perfectionism in undergraduate students, to begin to understand factors that increase the risk of students developing perfectionism. Results suggest that less use of adaptive emotion regulation strategies was associated with a greater risk of perfectionism, and these associations were exacerbated when students also reported high levels of emotional neglect from their mothers. The present study highlights the important roles that both emotion regulation and family context play in the development of perfectionism. Future studies should continue to examine ways that academic professionals can support students with their performance, as well as effective interventions for students with poor emotional regulation abilities.

July 29, 2025 - 1:30 PM - Poster Session 2: Sociology and Public Affairs

JASMINE GAONA
Eastern Kentucky University
Barriers in the United States Healthcare System that Affect the Quality of Care Women of Color Receive
Location: Optimist

In the United States, the maternal mortality rate for women of color is higher than for others. Understanding the self-reported barriers present in the healthcare system is crucial for future medical providers to arrange the best care for a patient. Therefore, the purpose of this study is to identify the self-reported barriers that are present when women of color are receiving maternity/pregnancy-based care. An anonymous survey was used to collect data from women of color who were 18-45 years old (childbearing age) and had received maternity care in the past five years. The survey's results identified several self-reported barriers that could assist healthcare providers when providing maternity care for women of color.

ILYHIA GREELY
Southern Oregon University
Barriers to Mental Health Services in Native American Communities: A Critical Review of the Literature
Location: Optimist

Native American communities continue to experience significant disparities in access to mental health and social services. These inequities are deeply rooted in historical trauma, colonization, systemic racism, and ongoing cultural disconnection between Indigenous peoples and Western service models. This literature-based analysis examines key scholarly works to identify recurring themes and gaps in research on this topic. Drawing from foundational texts by Brave Heart (1998), Duran (2006), Gone and Trimble (2012), Walls and Whitbeck (2012), and Brave Heart et al. (2011), the analysis reveals a consistent recognition of historical trauma as a core factor affecting mental health outcomes among Native populations. The reviewed literature emphasizes the importance of culturally grounded healing practices, critiques Western models of care, and calls for Indigenous-centered approaches to treatment. However, a critical gap remains in the representation of Native voices, particularly those of families directly impacted by mental health service barriers. Much of the current scholarship generalizes across diverse tribal experiences or lacks direct community-based perspectives. This gap highlights the need for future research that centers tribal-specific contexts and lived experiences. By synthesizing these key sources, this project underscores the limitations of dominant frameworks and advocates for more culturally responsive and community-informed approaches to mental health research and practice in Native American communities.

NOBLE CULPEPPER-HAWKINS
University of California, Santa Barbara
TikTok, Black Women, and Self Esteem
Location: Optimist

This two-part project will examine how beauty content on social media affects the self image of young Black women. Using the theoretical frameworks of social identity theory (Tajfel & Turner, 1986) and self-objectification theory (Fredrickson and Roberts, 1997), I suggest that Black women on TikTok receive harmful intergroup communication about beauty standards, relative to other racial groups, which ultimately affects feelings of self-esteem and self-worth. In Study 1, I plan on gathering social media comments on TikTok (~300 total) regarding beauty standards. Using Critical Technocultural Discourse Analysis (Brock, 2016), I plan to analyze this data to examine the specific aspects of this communication and how they relate to beauty discourses about Black women. In Study 2, I plan to run an online survey experiment with undergraduate Black women (~100 total) to test how these digital conversations influence Black women's perceptions about themselves, and how algorithms may play a role in these relationships. In line with previous literature (e.g., Ferell, 2022), I expect to find a link between TikTok beauty content discourses and lowered self esteem among women of color, specifically Black women. Finally, I plan to examine the role of social media algorithms in these relationships.

MARITZA GÓMEZ
University of California, Santa Barbara
Community-Based Conflict Resolution: Customary Law and Indigenous Self-Governance in Oaxaca
Location: Optimist

This research project examines how Indigenous communities in Oaxaca, Mexico, use customary law, known as usos y costumbres, to resolve local conflicts and govern themselves in ways that are more effective and accessible than the formal state system. After the 1994 constitutional reform, these practices were officially recognized. This allowed over 400 municipalities to elect leaders and resolve disputes according to community norms rather than through political parties or state courts. Drawing on interviews with state officials, this study explores how usos y costumbres offer timely conflict resolution, often settling disputes in hours or days. In contrast, cases that enter the formal legal system may remain unresolved for years due to a lack of state-level resources, limited institutional capacity, and the geographic distance between rural communities and legal infrastructure. These challenges make customary systems not only more culturally relevant, but also more practical for Indigenous communities navigating everyday issues. By focusing on accessibility, responsiveness, and self-governance, this project argues that usos y costumbres are vital governance systems that continue to meet the needs of communities where the state is often absent or ineffective. Although the research is ongoing, it highlights how Indigenous legal systems fill a critical gap in local governance and justice in contemporary Oaxaca.

JANIA WILLIS
University of Wisconsin - Whitewater
Disparities by Design: Racism, Healthcare, and Black Maternal Outcomes
Location: Optimist

Black maternal mortality in the United States represents a preventable public health crisis driven not by biological differences, but by systemic racism embedded in healthcare structures. Despite higher education levels and insurance coverage, Black women remain three to four times more likely to die from pregnancy-related causes than their white counterparts, according to the Centers for Disease Control and Prevention. This research investigates how implicit bias, historical injustice, and institutional racism converge to shape the quality of care Black women receive during pregnancy, childbirth, and postpartum. Drawing from foundational studies including those by Tulane University, the Kaiser Family Foundation, and the Journal of Women's Health, this project explores how provider-level discrimination, underrepresentation of Black physicians, and longstanding racial myths such as the belief that Black patients feel less pain compromise clinical outcomes. Employing a mixed-methods design, this study collects qualitative data through semi-structured interviews with Black women who have navigated United States maternity care systems, documenting their lived experiences with mistreatment, pain dismissal, and misdiagnosis. Additional interviews with Black healthcare providers offer insight into how systemic barriers and bias affect their practice. Quantitative analysis of national datasets complements these findings, revealing patterns of disparity in morbidity and mortality rates, provider communication, and pain management. By centering Black voices and contextualizing healthcare disparities within a broader legacy of racial injustice, this research calls for urgent reform. Solutions include implicit bias training, investment in culturally competent care, and increasing Black physician representation. Addressing Black maternal health inequities is not optional—it is a matter of reproductive justice, racial equity, and human rights.

July 29, 2025 - 1:30 PM - Psychology and Cognitive Science Breakout III: Panel D

GRACE GALLANT
University of Minnesota - Morris
Intergenerational Initiatives in Rural Communities: A Catalyst for Social Connectedness in Men
Location: Pathways

Intergenerational connections are interactions and exchanges between individuals from different age groups. Individuals of all ages who experience these connections have been shown to develop a stronger sense of community. For older adults specifically, additional benefits include improved self-esteem, reduced depressive symptoms, decreased loneliness, and increased well-being. Children and young people also benefit from improved mental health and a greater understanding of issues facing older adults. Programs designed to facilitate these connections often involve structured activities that engage both older adults and children, though these programs vary significantly in design and form. Although intergenerational programs are beneficial, some groups of older adults face barriers to accessing them. Despite experiencing a high rate of mental health concerns, older men participate in social programming less than older women. This is likely due to gendered marketing practices and prevailing norms around masculinity. Older men who reside in rural areas face additional barriers, including limited availability of formal support services. The primary purpose of this literature review is to explore programs that foster intergenerational connections and analyze the impacts these relationships have on older adults. This review will discuss the promotion of these connections in various environments, with an emphasis on how programs can better meet the needs of older men, particularly in rural communities. The findings from this review will inform a proposal for fostering intergenerational relationships in Morris.

JESSICA AGUDO
Augsburg University
False Confessions: Investigating Vulnerabilities to Wrongful Convictions
Location: Pathways

False confessions are a leading cause of wrongful convictions, often due to coercive police interrogation tactics that lead vulnerable individuals to become confused or compliant during high-pressure questioning (Gudjonsson et al., 2010). However, to date no one has systematically examined real-world cases of false confession to establish the scope of how specific vulnerabilities may increase the risk of false confession and wrongful conviction. To address this gap, our study uses a quantitative approach to analyze data from the National Registry of Exonerations (NRE). Our research aim is to examine the case summaries of all 455 documented NRE false confession cases to seek evidence of vulnerabilities to false confession, such as juvenile status (below the age of 18), minority status, intellectual impairment, language barriers, psychological disorders, and whether a Miranda warning was given. This research emphasizes the need for more collaboration between researchers and law enforcement to implement evidence-based, humane interrogation practices that protect vulnerable suspects and reduce the risk of wrongful convictions.

EMMA SUCHSLAND
Truman State University
Does Social Cohesion on College Campuses Impact the Crime Reporting Patterns of College Students?
Location: Pathways

Although college students are among the most victimized age groups, they are very unlikely to report a crime witnessed on campus to the proper authorities. This is harmful because in order for police and other campus authorities to intervene and help students, they have to be aware of the crime that is occurring. The goal of this project is to explore the relationship between aspects of social disorganization theory and students' willingness to report crime when presented with hypothetical scenarios. These predictor variables include social cohesion, campus connectedness, peer loyalty, and feelings towards campus police. Social cohesion on a college campus has to do with how much a student feels they belong to the campus community and how much they trust their fellow students. The hypothesis was that the students who felt a higher level of social cohesion and campus belonging would be more likely to report crime witnessed. Although the sign for the correlation was correct, it relationship was not significant. By contrast, both a linear regression and an ANOVA test found that students' sentiment towards campus police and religiosity is positively correlated with reporting crime. Additionally, the population of one's hometown is negatively correlated with reporting crime, and the type of crime witnessed also plays a role – the bigger the hometown, the less inclined students are to report crimes. The main finding amplifies the importance of proper training for university police and their ability to interact positively with students in a variety of situations.

MANUEL ESPITIA
Knox College
Perceived Stress Levels Among Law Enforcement, Gang Members, and College Students
Location: Pathways

Stress is a general psychological response, yet the contexts that shape its intensity and manifestation can differ vastly between social groups. This study examined stress levels among two distinct high-stress populations—law enforcement officers and gang-affiliated individuals—in order to identify similarities and differences in their responses to various stress-inducing situations. Due to a gap in current literature further comparing these distinct groups, the study is hoping to bridge that gap with further findings. Using a mixed-methods design, we administered a custom questionnaire to 75 participants (25 from each group, including a control group of college students), measuring perceived stress from both general life stressors and group-specific scenarios. Participants rated both their own stress and the expected stress levels of the opposing group using Likert-scale responses. We predict that law enforcement officers and gang members will both have higher stress levels than college students. Additionally, law enforcement and gang members will over-estimate each other's stress levels for each scenario. Findings aims to expand upon existing literature by identifying specific stressors that significantly impact each group, while also exploring potential psychological common ground between groups traditionally viewed in opposition. By highlighting shared human experiences of stress, this research seeks to challenge societal stereotypes and foster greater empathy between disparate communities.

July 29, 2025 - 1:30 PM - Psychology and Cognitive Science Breakout III: Panel E

EMMA LEWIS
Truman State University
Is self-organizing behavior connected to anxiety and depression symptoms?
Location: Catalyst

The most common symptom of anxiety is excessive worry or concern. The main symptoms of depression are an excessively sad, irritable, or apathetic mood and a lack of motivation or interest in activities. However, relief may come from using self-organizing behavior. Self-organizing behavior is defined as actions intending to easily access ideas and objects through coordination and structure. This research project has three parts, each aiming to see if respondents who engage in self-organizing behaviors express fewer symptoms of anxiety or depression.

CHRISTIAN SERRANO
University of Oregon
Sleep as a Moderator in the Relationship Between Stressful Life Events and Depressive Symptoms
Location: Catalyst

Adolescence is a critical developmental period that can strongly be influenced by exposure to stressful life events, heightened vulnerability to depression, and other mood disorders. Sleep patterns such as duration and midpoint are increasingly recognized as influential factors in emotional regulation and mental health. This study investigates whether sleep duration and midpoint moderates the relationship between stressful life events and depressive symptoms in adolescents. Using current data from the MoDA project, moderation analyses will be conducted using multiple regression models in R-Studio, testing whether the relationship between life stressors and depressive symptoms varies based on sleep characteristics as a controlling factor. We hypothesize that the association between stressful events and depressive symptoms will be stronger in adolescents with short and late sleep midpoints compared to those with longer and earlier sleep midpoints. Understanding these interactions may provide insight into how we conceptualize sleep as a modifying factor in adolescent mental health and additionally, create and inform future interventions aimed at reducing the burden of depression in the adolescent population.

CODIE HOLT
University of Minnesota - Morris
A Literature Review on the History, Science, and Applications of Music Therapy
Location: Catalyst

When the term Music Therapy is stated, it is usually followed by questions such as, "What is that?" "What can you do with that?" "Do you just sing songs to people?" "If I can sing, can I do music therapy?" Questions like these leave people wondering what music therapy is. With the support of scholarly-reviewed articles, this study aims to demystify the field of Music Therapy with historical context, the science behind it, and ways to apply evidence-based research. Additionally, examples of music therapy Interventions used by board-certified music therapists within their private practice will be provided to demonstrate the effectiveness of music therapy with clients. Applicable to both scholars and non-scholars, a literature review on the field aims to be helpful for those considering the field and those looking to learn more about music therapy. Most importantly, this research seeks to raise curiosity and answer the questions often associated with the field.

TYLER CHISHOLM
University of Oregon
Beyond the Screen: Mapping Social Media's Role in Adolescent Emotion Regulation
Location: Catalyst

Although social media is often associated with negative outcomes for youth, such as cyberbullying and emotional distress, it may also support emotional regulation among adolescents. This systematic literature review analyzed 23 studies from over 1,400 screened articles to examine the relationship between digital media use and emotional regulation for adolescents aged 11–19. Findings reveal both risks and benefits: while problematic use can contribute to dysregulation, online platforms also offer tools for coping, self-reflection, and emotional expression. Protective factors such as media literacy and parental mediation were also identified. These results highlight the need for a more balanced understanding of adolescent technology use and suggest pathways for promoting emotional well-being through digital engagement.

July 29, 2025 - 1:30 PM - Sociology and Public Affairs Breakout III: Panel C

ARIKKA FRANKLIN
Eastern Michigan University
It's Not The Lead It's The Funding: Flint, Michigan
Location: Discovery

This research aims to delve into the critical role of public funding in providing vital nutritional and educational resources for low-income families residing in Flint, Michigan, specifically those with children under 18. By aiming to shed light on the significant link between access to sufficient and nutritious food and educational opportunities supported by public funding. Analyzing previous research on this topic, comparing the similarities, and examining the holes in the research. This research seeks to provide a thorough understanding of how these vital aspects affect the well-being and prospects of children in Flint. In particular, the research will highlight the direct impact of public funding on food insecurity, food assistance, and education, a pressing issue faced by many families in the area.

GENESIS LIRIANO
University of Wisconsin - Madison
Shaping Inclusive Cities: Exploring Cultural Equity in Urban Planning
Location: Discovery

City plans guide the development of infrastructure and public services in an area, but there is a growing emphasis on cultural planning. According to scholars like Kovacs (2011) and Ashley et al. (2021), cultural plans are a framework for improving community and economic development by integrating the arts and a neighborhood's values in the planning system. This shift reflects a broader understanding of how culture plays a vital role in the growth of an environment through building place identity, fostering social cohesion and supporting financial revitalization. This project examines about 90 cultural plans from cities nationwide to gain insight into how they engage with social justice themes such as equity and diversity in the planning process to shape more inclusive and representative landscapes. We began by analyzing existing plans, searching for terms indicative of cultural consideration such as gentrification and traditions, to explore how existing cultural development plans address questions surrounding crime, race and belonging. We aim to assess how municipalities define and prioritize communities in order to uncover the benefits and limitations of using cultural planning as a tool for equity and inclusion. By identifying what is emphasized and what is overlooked, this study highlights opportunities to strengthen cultural plans so they better reflect the diverse needs and voices of communities.

ETHAN ROMPALA-MATTHEWS
Knox College
Gentrification and Mental Health in Changing Chicago Communities
Location: Discovery

As gentrification reshapes historically disadvantaged communities, the experiences of longtime residents are often overshadowed by narratives of rebranding and economic growth. These changes can alter the character of a community, displacing lower-income residents and disrupting its cultural fabric. As a result, those who remain are often left in a neighborhood that no longer reflects their history or identity. Chicago provides a critical context for examining the impact of gentrification on social cohesion and community well-being, given its history of segregation and racialized housing policies. Unlike studies focused on displacement and demographic change, this research examines the impact of a changing neighborhood on the long-term residents who remain. The research examines the effects of gentrification-related neighborhood change on these residents' wellbeing, particularly as it affects social networks and sense of belonging. This study draws aggregate-level data from the Healthy Chicago Survey, an annual community health assessment conducted since 2014. The dataset compiles publicly available variables from multiple survey cycles and includes measures of social, economic, and physical health from all 77 community areas. Stata will be used to evaluate how indicators of neighborhood transformation correlate with perceived social cohesion and self-reported wellbeing. The findings of this study aim to assess the impact of neighborhood-level gentrification indicators on the aggregate wellbeing outcomes reported in the Healthy Chicago Survey. This research contributes to a growing body of work examining the public health and psychosocial consequences of neighborhood change. Understanding these relationships may provide insight into the connection between wellbeing and changing neighborhood conditions.

EVAN MORRIS
Knox College
Attitudes towards U.S. Regional Dialects
Location: Discovery

Understanding how regional dialects are perceived across the United States offers critical insights at the intersection of sociolinguistics and social psychology. From a social psychological perspective, dialects function as social cues that influence identity formation, group affiliation, and implicit bias. Stereotypes and linguistic ideologies, often learned in early childhood. They contribute to social judgments about speakers and reinforce perceptions of in-group versus out-group membership. Building on research in language variation, dialect perception, and intergroup attitudes, we investigate how region of origin, social exposure, and familiarity with dialects shape listener evaluations of speech. Using an online survey, we examined dialectal attitudes between speakers from three major American English dialect regions: the South, the Midland, and the West. We hypothesized that listeners would favor their own regional dialect while exhibiting differing degrees of negativity toward others. Additionally, we explored how geographic mobility and perceptual familiarity impacts dialect classification and evaluation. Our research shows how social psychological mechanisms—such as group identity, stereotype formation, and perceptual categorizations shape dialectal ideologies and contribute to broader social dynamics. This work advances both sociolinguistic theory and social psychological research by highlighting how language functions as both a marker of identity and a site of social judgment, which we see with historically stigmatized groups like the Southern dialect. By better understanding the underlying social dynamics fueling inter-group judgments, we can more mindfully combat stereotyping and its real world consequences.

July 29, 2025 - 2:45 PM - Anthropology, Gender, and Ethnic Studies Breakout IV: Panel A

TOSIN ILESANMI
Southern Methodist University
Child Marriage in Africa: Examining the Legal, Cultural, and Socioeconomic Realities Through the Power of Storytelling.
Location: Pinnacle

This research explores the practice of child marriage in Africa, with a primary focus on Nigeria, Kenya and Ethiopia through the lens of storytelling and narrative theory. Using qualitative narrative inquiry and grounded in transnational feminist and intersectional approaches, this study draws from survivor stories of child brides, legal frameworks, and lived community experiences to understand the cultural, Religious, legal, and economic factors contributing to child marriage. The goal is to identify the gaps between statutory law, customary and religious practices and demonstrate how storytelling can serve not just as a method of inquiry but also as a powerful form of resistance against child marriage. By using survivor voices and engaging with theoretical frameworks like Walter Fisher's (1984) narrative paradigm, this study aims to shift the conversation from just statistics and data to the girls going through it, and contributing to global efforts to end early marriage.

ESMERALDA GOMEZ
Knox College
Does it look ANY Different?: Teenage girls coming-of-age in films from the 1990s and 2020s.
Location: Pinnacle

Coming-of-age films depict a young character transitioning from adolescence to adulthood by undergoing a challenge, and over the course of a film, the audience watches their journey to overcome the challenges they faced. Although, simply seeing the challenges being faced on screen does not mean that we always know the underlying message being portrayed. "Mise-en-scène" is a term in film that describes everything we see in front of the camera and allows for the viewers to get a better grasp of the world within the film. The current literature around coming-of-age is very limited because it is a topic that has not been explored as much as other film genres or sub-genres. In my project, I analyze the visual storytelling in teenage girl coming-of-age films to see if there is a difference in the visual storytelling between the 1990s and 2020s. I anticipated that the newer films would have more artistic freedom compared to the older films because of the times in which they were produced and released. I examined six films that came out in the 1990s and six that came out in the 2020s and initially observed similarities and differences between the two groups of films. Then, I watched the films without audio to focus specifically on the visual aspects of the films. So far, there have been some noticeable differences between how the different decades have visually presented their versions of coming-of-age stories.

HARPER ELDER
Westminster University
Women Writing with Y's: A Poetic Exploration of Womanhood,
Location: Pinnacle

This two-phase project seeks to understand "women's" poetry, which as a genre is distinct from feminist poetry because it includes any poetry written by women, through a lens of queer phenomenology (Leahy, 2008). The first phase consisted of reading 16 anthologies of post-20th-century American women's poetry. This reading was informed by queer phenomenological understandings of orientation, drawn from the work of Sarah Ahmed, and French feminist philosophy because of their discussions of writing. Using this lens, I selected 15 poems to write after. After-poems are a tradition of poetic conversation when a poet appropriates another's form and style. In the second phase, the 15 after-poems were written with the aim to catalogue, converse with, and explore these women poets' understanding of womanhood and their own relationship with writing. After their completion, the after-poems were assembled into a chapbook that explores and comments on the last century of women's poetry. Ultimately, this project seeks to inspect what a woman is and what exactly is a woman who writes?

JAKAI LOWE
Bowling Green State University
Uneven Playbooks: Coaching Disparities at Big Green in the Mideastern Spotlight
Location: Pinnacle

This is a quantitative study that explores gender-based disparities in collegiate coaching by analyzing men's and women's head basketball programs at Big Green School (pseudonym) a prominent member of the Big Mideastern Conference. Drawing from recent Equity in Athletics Disclosure Act (EADA) data, the research evaluates key categories such as head coach and assistant coach compensation, staffing support, program resources, recruiting budgets, and media exposure. Despite both teams being full-time, competitive programs with histories of success, preliminary findings show significant disparities. The men’s head coach earns over four times the salary of the women’s coach ($1.06 million vs. $259,688), and assistant coaches for the men’s team earn more on average than their female program counterparts ($261,916 vs. $73,556). Additionally, the men's program receives more in recruiting funds (over three times more), operating expenses, and overall program investment. While revenue generation is also higher for the men’s team ($25.7 million compared to $7.6 million), the scale of resource disparity raises critical questions about equity and Title IX compliance. This study contributes to the field of sports management and gender studies by offering a data-driven examination of resource allocation and institutional priorities. Its findings aim to inform universities about athletic policies, influence public and media discourse, and support broader efforts to achieve gender equity in collegiate athletics.

July 29, 2025 - 2:45 PM - Arts and Multimedia Breakout IV: Panel A

DAYSIA WOOD
Fayetteville State University
Illuminating Identity: Exploring and Expanding Black Storytelling
Location: Odyssey

This study investigates the portrayal of Black characters by examining the narrative's usage of dark/light symbolism, Black culture, and pervasive stereotypes in science fiction and modern fantasy. Through qualitative discourse analysis of selected literature Blood at the Root, American Gods, Good Omens, The Color of Magic, Kindred, The Fifth Season, A Harvest of Hearts, Zoo City, Who Fears Death and The Heaven & Earth Grocery Store, and theoretical analysis of Playing in the Dark, Orientalism, The Invention of Race, Afrocentricity in Afrofuturism, Race Matters, and Flame Wars, this research aims to discover how Black characters are represented in their narratives and how their portrayal reflects real-world discrimination as well as the call for diversity within literature and visual media. The research questions center around the understanding of the portrayal of Blacks in these contexts: How is the presence of dark and light symbolism utilized in the narrative in reference to the Black individual's portrayal? What social stereotypes and biases does the Black character face, and what does the portrayal reflect in reality? How are characters coded as Black based upon the use of cultural markers? What is the narrative presence of Black individuals, and is there evidence of tokenism? The major question discusses how these chosen texts represent Black individuals and their culture through thematic analysis and the use of language to identify characteristics, stereotypes, and biases impactful to the nuanced depiction of Black individuals in literature and visual media.

JAHLA WHITE
University of Texas at Austin
Analyzing the Reception of Blackness in Journalism
Location: Odyssey

This research examines the role of media in shaping public discourse, with a focus on the intersection of race, media content, and audience reception. Using content from The New York Times, CNN, and The Shade Room, this study analyzes 75 articles— from both the 2020 US election and the 2024 US election—across five keyframing categories: Moral, Legal, Economic, Global, and National. This research examines how communication strategies can be utilized to target different audience groups, particularly those defined by race. The study identifies key communication models such as one-way and two-way communication: 1. One-Way Communication: This model involves the distribution of information from media outlets to audiences with little to no direct feedback. In the context of political media coverage, one-way communication can be used to shape public perception by presenting a curated narrative. Mainstream media outlets like CNN and The New York Times use one-way communication to broadcast political messages, ads, or reports with minimal engagement from the audience. 2. Two-Way Communication: This model facilitates a dialogue between media outlets and their audience, promoting feedback and interaction. Social media platforms like The Shade Room rely heavily on two-way communication, allowing for real-time responses, comments, and direct engagement from the public. It allows the media to refine its narratives based on audience reactions, creating a more dynamic, participatory form of communication. By analyzing the shifting discourse on race and the field of communications, this study highlights the evolving role of media in shaping and partaking in public opinion.

MAR'VELLIS MARTIN
Bowling Green State University
The Rise of the Black Female Producer: The Representation of Black Joy
Location: Odyssey

With the recent rise of diverse female voices in media, Black female producers have appeared as cultural powerhouses telling stories beyond trauma and stereotype. This research will explore how Black female television producers have played a pivotal role in presenting authentic narratives about Black culture. Two such producers include Issa Rae and Quinta Brunson, who are redefining what it means to tell Black stories on screen. Through their series Insecure (HBO, 2016-2021) and Abbott Elementary (ABC, 2021-present), Rae and Brunson offer narratives about Black culture and elevate Black joy and community. Through comedic elements, character-driven plots, and community-based themes, both shows capture the richness of everyday Black life. This study will involve a comparative analysis of the careers and creative work of Brunson and Rae. With a focus on Black joy, cultural authenticity, and self-representation, methods will include textual analyses of five episodes each from Insecure and Abbott Elementary and media coverage about the women and their series as well as scholarly discussions on Black women in television. Preliminary findings suggest that Rae and Brunson are part of a creative shift reshaping the representations of Black culture, challenging traditional portrayals, and centering joyful, culturally grounded experiences. This study is significant because it highlights the contributions of Black women in shifting media narratives about Black culture and shows how authentic, joy centered storytelling may empower future media storytellers. The findings suggest that there is a growing space within the entertainment industry for Black joy to portray creatively without compromising cultural authenticity.

July 29, 2025 - 2:45 PM - Education Breakout IV: Panel A

COLE GINO
Knox College
Win or Lose, We Booze: How College Drinking Culture Affects Binge-Drinking Behavior In College Athletes
Location: Innovation

The question of how college athletes are affected by drinking culture has been asked by anthropologists and sociologists for years. Many different scholars such as Edward Wahesh and Henry Wechsler look at drinking from external factors such as grades, homework, and tailgates. However, these articles have not examined how the schedules of student athletes might affect binge drinking behavior. I argue that the athletic schedules collegiate athletes are required to follow in-season directly affect the amount of binge drinking that occurs. My research addresses outside pressures that can motivate binge drinking, such as winning and losing. Although, I am primarily focused on how in-season schedules vs. out-of-season schedules influence binge drinking in student athletes. To find the correlation between being in-season and binge drinking, I conducted in-person interviews, phone interviews, and participant observations. I closely examine the differences in drinking behaviors through interviews and participant observation. Through these observations, I predict that adhering to the in-season athletics schedules will increase a student athlete's tendency to binge drink as opposed to their off-season schedules. Based on the data I have gathered so far, this is due to a couple of factors: stress, a lack of free time, and a “get it all in at once” mentality. Participants stated their limited leisure time in season was used to relax and relieve stress. Studying athletes and their drinking behaviors is important to understand why they are a high-risk group for alcoholism and finding solutions to binge drinking within this age group.

MARIE SMITH
Fayetteville State University
The Impact of Poor Physical and Mental Health on Undergraduate Students' Academic Success
Location: Innovation

This study was designed to examine the relationships between physical health, mental health, and academic success/performance in undergraduate students. Data was collected through Survey Monkey from 208 undergraduate students aged 18 or older. The survey instrument included sections on demographics, academic success, physical health, and mental health (developed by the researchers) and the DASS21. The results indicated significant correlations between the variables of mental health and physical health (r =-.617 **), mental health and academic success (r = -.393), and physical health and academic success (r = .459**). Results from Welch’s t-test [t (170) =-2.24, p=0.026] indicate that students who report getting sick throughout the academic semester demonstrate lower academic success (M=4.61) than their counterparts (M=4.85). Multiple regression analysis was conducted to predict physical health and mental health effects on academic success. The model was statistically significant F (2, 206) = 32.016, with an R-squared of .23 suggesting that physical health (β = .33, p < .001) and mental health (β = -.21, p < .01) together account for 23% of the variance in academic success. Findings indicate that there is both a correlation and effect of diminished well-being on undergraduate students' academic success. The implications of the results support the need for further research and to provide appropriate campus resources, services, access, and support to undergraduate students.

RYAN LOTHAMER
Bowling Green State University
High School Indicators as Predictors of University-level Introductory STEM Course Performance
Location: Innovation

This study investigates how pre-college academic indicators and high school-level metrics predict academic performance in introductory STEM courses at the university level. Utilizing a dataset of nearly 10,000 students from Bowling Green State University, matched with public high school data from the Ohio Department of Education and Workforce, the study analyzes high school variables such as GPA, class rank (percentile), per-pupil spending, graduation rates, and state test scores. Multiple regression will be used to assess the relative predictive strength of individual and school-level variables, while path analysis will explore potential indirect effects. Academic performance will be measured by the student's grade in the introductory STEM course. Grounded in educational theory, this study emphasizes the interaction between an individual's academic experience and their broader educational environment. These educational frameworks help explain how a student's academic journey is shaped by not only personal academic history, but also broader systemic factors at the school and district level. Preliminary analysis suggests that high school GPA and rank are strong predictors of early success in college STEM coursework, while school-level metrics such as spending, and graduation rate suggest more complex relationships. The findings from this study have potential implications for high school student preparation, higher education admissions strategies, and policy interventions aimed at improving student retention and achievement in STEM fields, particularly for students across a wide range of school and district contexts.

UMAIR SUBHANI
Westminster University
The Impact of Exam Wrappers on Metacognition and Academic Performance in Undergraduate Human Anatomy Students
Location: Innovation

Background: Prior research demonstrates high attrition rates and low student engagement among Human Anatomy and Physiology students. Students in these courses face poor academic performance and low pass rates. Exam wrappers are survey-based tools used to prompt student reflection on concepts such as test preparation, study strategies, and exam performance. By fostering metacognition, exam wrappers can influence how students approach course material, potentially improving student outcomes in Anatomy courses. Purpose: This study investigates whether exam wrappers promote self-reflection, growth mindsets, study habits, and reduced test anxiety and then examines how these factors can impact exam performance. Methodology: Participants were Human Anatomy students who completed surveys assessing self-reflection, growth mindsets, study habits, and test anxiety. We employed a quasi-experimental pretest-posttest design, with students assigned to either an intervention or a non-intervention control group based on their course sections. Surveys were administered at Westminster and Weber State Universities after the first and final exams, with only the treatment group receiving the exam wrappers. Participation was voluntary, and students who completed the exam wrapper could take new questions on unmastered concepts, earning points toward their final grade for correct answers. Implications: The study highlights the possible impact of self-referential capabilities (e.g., growth mindsets and study habits) in a test-taking environment. Findings from this study may inform research on how self-referential capabilities impact student test performance and how providing the opportunity to relearn and retest after reflection may positively affect student performance.

July 29, 2025 - 2:45 PM - Engineering Breakout IV: Panel B

KENNEDY YOUNG
University of Wisconsin - Madison
Collagen Fiber Organization as a Driver of Idiopathic Pulmonary Fibrosis
Location: Pathways

Idiopathic Pulmonary Fibrosis (IPF) is a chronic lung disease that leads to progressive scarring of the tissue. Over time, this scarring prevents the lungs from properly expanding, limiting the amount of oxygen that reaches the rest of the body. As the oxygen levels decrease, vital organs shut down, resulting in death. The exact cause of IPF remains unknown, and there are no cures. Existing treatments, such as lung transplantation and supportive medicine, focus on relieving symptoms and slowing disease progression. This project aims to identify the cellular pathways involved in IPF and discover whether disease progression can be interrupted before fibrosis fully develops. To achieve this, we designed a GelMA and Collagen Type 1 hydrogel mixture that replicates the mechanical stiffness (2-8 kPa) and collagen structure of both healthy and fibrotic lung tissue. Bulk hydrogels (500 um thick) are fabricated using UV crosslinking, and 10 um thick collagen patterns are added using multiphoton-excited photochemistry. Both normal human lung fibroblasts and IPF fibroblasts are cultured on these patterned hydrogels. The fibrillar patterns provide physical cues that influence cell motility, gene expression, and resultant cell signaling. Bulk RNA sequencing is then performed, followed by differential gene expression analysis to identify which genes are active. Finally, gene ontology and gene set enrichment analysis (GSEA) are conducted to identify enriched signaling pathways. This approach allows us to investigate how mechanical cues influence the activation of disease pathways in IPF, potentially leading to the development of new treatment strategies.

TAMMY NGUYEN
University of Minnesota - Twin Cities
Density-Dependent Heterogeneity in Single-Cell Properties of Sickle Cell Disease
Location: Pathways

Sickle cell disease is characterized by the polymerization of hemoglobin S under low oxygen conditions, leading to red blood cell deformation and vaso-occlusion. While prior studies have demonstrated heterogeneity in polymerization across oxygen tensions and between patients, the role of red blood cell density, a proxy for intracellular protein concentration and cell age, in influencing polymerization behavior remains poorly understood. Given that hemoglobin S polymerization is concentration-dependent, it was expected that red blood cell subpopulations separated by density will exhibit distinct single-cell polymerization profiles at the same oxygen tensions. In this study, red blood cell density fractions were isolated using continuous and discontinuous Percoll gradients. Each fraction was flowed through a microfluidic device while being exposed to seven controlled oxygen tensions. Quantitative absorption cytometry was used to measure single-cell oxygen saturation, mean corpuscular volume, and hemoglobin mass per cell. Polymerized and soluble cell fractions were quantified using a previously validated image classification algorithm based on the ResNet-50 convolutional neural network. Preliminary findings reveal significant differences in polymerized cell fraction and oxygen saturation between density fractions, particularly at hypoxic conditions, suggesting that cell density is a key contributor to polymerization. These results highlight an underexplored factor of heterogeneity in sickle cell disease and suggest that polymerization may not be uniform across red blood cell populations.

JULIA GRAFF
Westminster University
Identifying Gene Polymorphisms to Test for Hypermobile Ehlers-Danlos Syndrome
Location: Pathways

Hypermobile Ehlers-Danlos syndrome (hEDS) is one of 13 presentations of EDS. It is a common heritable condition with an estimated prevalence of approximately 1 in 10,000 people and functions by disruption of collagen physiology. The standard for diagnosing patients with EDS is currently gene sequencing which is expensive and often not covered by insurance. The hypermobile variant is currently the only EDS presentation without a known genetic cause, and thus no concrete diagnosis method for this condition exists. Since collagen is a key component of connective tissue, many organ systems can be affected. This results in a wide variety of symptoms ranging from hypermobility to neurological conditions and heart defects. Recently a family of serine proteases, the kallikreins have been implicated in influencing collagen structure. We aim to develop an affordable diagnostic tool to diagnose patients with symptoms of hEDS based on gel analysis of collagen fibrils. To assess collagen structure, we will treat mammalian cells with recombinant kallikrein proteins derived from patients with hEDS. We hypothesize treatment with these recombinant proteins will disrupt normal collagen structure through incomplete fibril formation, suggesting that mutations in kallikrein proteins are causal for collagen malformation and are ultimately the cause of hEDS.

SIHAM IBRAHIM
University of Minnesota - Twin Cities
Assessing the acceptability and feasibility of collecting biospecimen samples to measure tobacco smoke exposure in Somali families
Location: Pathways

Objectively measuring tobacco smoke exposure (TSE) using biospecimens is important for confirming the effectiveness of behavioral interventions aimed at reducing TSE. However, there is limited knowledge about how certain populations perceive the use of biomarker specimens in research and the facilitators and barriers to collecting biomarker specimens in these groups, especially among U.S. African immigrant populations. The purpose of this study is to 1) determine the acceptability and feasibility of collecting salivary cotinine biomarker specimens from Somali families as part of a behavioral intervention study to reduce household TSE and 2) to identify and characterize the facilitators and barriers to participation in salivary cotinine biomarker specimen collection for Somali families. Data includes 10 key informant interviews and 6 focus groups (n=40) with Somali parents on their perceptions of TSE biomarkers and possible facilitators and barriers to collecting biomarkers. 15 Somali American families will additionally be chosen to participate in interviews as part of a broader household TSE reduction intervention about the acceptability and feasibility of collecting salivary biomarker specimens, and the facilitators and barriers of collecting salivary biomarker specimens. We will also be measuring participation levels in the biospecimen sample collection to gauge the feasibility of collecting salivary cotinine samples in future studies. Understanding how biomarker specimens are accepted within a community is essential. A clearer understanding of the perceptions of biospecimen testing will guide more inclusive future research strategies for communities underrepresented in research.

July 29, 2025 - 2:45 PM - Psychology and Cognitive Science Breakout IV: Panel G

ALEXIA DUNCAN
St. Edward's University
Navigating Adversity: The Impact of Childhood Abuse, Neglect, and the Absence of Inclusivity on Sexual and Gender Minorities Well-Being
Location: Discovery

Adverse childhood experiences (ACEs) are traumatic events that can happen during the developmental stages of childhood, including abuse, neglect, and household dysfunction. Current literature highlights that many SGMs are at a higher risk of experiencing child abuse, including emotional, physical, and sexual abuse, compared to their heterosexual peers. This study explores how early exposure to ACE among sexual and gender minorities (SGMs) impacts on mental health impacts and the importance of trauma-informed care models and community-based practices that are responsive to the specific needs of these individuals. As these experiences have been linked to long-term effects on overall well-being. Specifically, this research explores the unique forms of trauma faced by SGM individuals during their childhood and includes various forms of household dysfunction. Participants were recruited using flyers posted on community boards around the Austin, Texas area and through social media. Directed individuals to an anonymous survey, which used a mixed-methods approach, the quantitative component includes structured, closed-ended questions, while the qualitative component includes open-ended questions allowing participants to elaborate on their experiences. By centering the voices of SGMs with lived experience of ACEs, we hope to inform trauma-informed care models and community-based practices that are responsive to the specific needs of these individuals. This study contributes to the existing body of knowledge by offering a more nuanced understanding of identity-based trauma and its lasting impact. Additionally, it provides valuable insight for shaping policy and social services that protect vulnerable youth from discrimination and emotional harm, particularly those related to gender and sexual identity.

ASH MCLAREN
University of Oregon
The Protective Function of Resilience on Maternal Childhood Trauma and Infant Emotion Dysregulation
Location: Discovery

Maternal experiences of childhood trauma are known to adversely affect mental health during pregnancy and may influence infant outcomes through biological and behavioral pathways. A growing body of research suggests that the effects of early adversity can be transmitted intergenerationally, increasing the risk of emotion dysregulation in offspring. Resilience, or the capacity to adapt in the face of hardship, has emerged as a protective factor that may buffer the impact of adverse childhood experiences (ACEs). The purpose of this study was to explore whether maternal resilience moderated the association between maternal adverse childhood experiences and infant emotion dysregulation at seven months postpartum. During their third trimester, participants (N = 123) completed the Connor-Davidson Resilience Scale (CD-RISC) and the Traumatic Experiences of Betrayal Across the Lifespan (TEBL) measure to assess resilience and ACEs. At seven months postpartum, participants completed the Infant Behavior Questionnaire – Very Short Form (IBQ-VSF) to assess infant emotion regulation. Contrary to hypotheses, maternal ACEs did not significantly predict infant emotion dysregulation ($b = 0.07$, $p = .115$), and resilience did not moderate the association between maternal ACEs and infant emotion dysregulation ($b = 0.0001$, $p = .897$). These results suggest that maternal childhood trauma does not directly translate to infant emotion regulation outcomes in early infancy. Future research should investigate additional protective factors, such as social support or parenting behaviors, which may influence early emotional development and further clarify the mechanisms of intergenerational trauma.

MARIANA MCCOTTRY
Fayetteville State University
The Effects of Childhood Mental Health on Adult Work Ethic
Location: Discovery

Children's psychopathology is an area that has recently become increasingly researched. However, the impact on adulthood has not been studied extensively. It has been found that 13 percent of children aged 3 to 17-years old experience a mental or behavioral health condition (CDC, 2025). Similarly, 50 percent of adult mental health disorders began before the age of 14, which shows a significant impact of childhood disorders on adulthood (Kessler et al., 2005). With work being a primary concern of adulthood, the impact of childhood disorders on work ethics specifically is an important variable to research. This study is therefore aimed at investigating the impact of childhood psychopathology on adults' work ethic. The findings will add to the pool of research already out there on the effects of childhood disorders and increase the push to provide mental health treatment to the youth. Data will be collected through Survey Monkey software using a questionnaire developed by modifying other questionnaires as well as a demographic section. Participants will be adults 18 years or older recruited from the general population. Univariate Analysis of Variance will be conducted to examine the effects of demographics variables and childhood disorders on work ethic. Additional analysis, including correlations and regressions, will be conducted to examine the relationship between variables. The results will be presented at the conference, and the implications will be further discussed.

BOBBILYN DAVIS
Rider University
Investigating the Role of Latrophilins in Striatal Synapse Formation and Input Connectivity
Location: Discovery

Synaptic specificity and synapse formation are fundamental to neural circuit function, yet the mechanisms governing synaptic partner selection remain poorly understood. Latrophilins (Lphns), a subset of adhesion G-protein coupled receptors (aGPCRs), mediate synaptic specificity and formation through transcellular interactions with presynaptic cell-adhesion molecules and GPCR signaling. While Lphns promote excitatory synapse formation in the hippocampus, their role in the striatum, which predominantly consists of dopamine D1 and D2 receptor-expressing medium spiny neurons (MSNs), remains elusive. D1 MSNs form the direct pathway, whereas D2 MSNs comprise the indirect pathway, establishing distinct neuronal circuits within the basal ganglia. Diverse glutaminergic inputs from cortex, thalamus, amygdala, and dopaminergic signals from substantia nigra and ventral tegmental area converge on MSNs. This enables the striatum to regulate motor movements, cognition, decision-making, and reward processing. However, the mechanisms by which these inputs are organized to regulate MSN activity are not yet understood. Our preliminary data reveal that conditional knockout (cKO) of Lphns in D2 MSNs leads to significant alterations in excitatory and inhibitory spontaneous postsynaptic currents and dramatically attenuates behavioral response to amphetamine. To further investigate, we will employ rabies virus-based retrograde tracing to map changes in presynaptic connectivity onto D2 MSNs in Lphn D2 cKO mice. Additionally, we use immunohistochemistry to assess synaptic puncta in Lphn D1 cKO mice, providing insight into synapse number and organization. Investigating how Lphns regulate synaptic inputs onto MSNs, our study aims to uncover fundamental mechanisms of striatal circuit assembly and inform potential therapeutic developments for disorders involving striatal dysfunction.

July 29, 2025 - 2:45 PM - Psychology and Cognitive Science IV: Panel F

STEPHANY MERCHÁN
St. Edward's University
Understanding lived experiences of U.S. citizen children in mixed-status families
Location: Catalyst

Given our current socio-political climate, immigration is a topic that is talked about almost every day. However, there is limited discussion about how anti-immigrant policies also impact U.S. citizens, particularly mixed-status families, which are made up by family members who have different citizenship statuses. The primary goal of this study is to improve our understanding of the experiences of U.S. citizens in mixed-status families, with at least one undocumented parent, taking into consideration factors such as gender and birth order when it comes to family expectations and responsibilities. This exploratory study utilized an online survey and thematic analysis to explore the experiences of citizen children in mixed-status families. Preliminary findings suggest that having at least one undocumented parent impacts many areas of a person's life. From professional and educational opportunities, to everyday decision making, being part of a mixed-status family as a U.S. citizen transforms people's upbringing. Implications will allow social service providers, mental health practitioners, and educators to expand and improve resources to better support children in mixed-status families across all ages. Furthermore, this research can be used to inform legal service providers how to advise and support mixed-status families to ensure the physical and mental well-being of all family members.

ELLA GUERRA
University of Nebraska–Lincoln
Empowering youth workers: a systematic review of the key elements in effective training frameworks designed to help youth workers identify and respond to adolescent mental health struggles
Location: Catalyst

Rising mental health struggles among adolescents justifies increased demand for intervention and prevention efforts. Adolescents are unlikely to seek professional support in a crisis but instead turn to social sources such as trusted adults. Providing these adults the necessary resources to offer mental health support is crucial for adolescents' well-being. Thus, the purpose of this research is to define key components of training programs for adults who work with youth to respond to mental health struggles in adolescents and evaluate the effectiveness of current training models. Studies evaluating the effectiveness of such programs will be identified by searching common databases. Each study will be assessed on demographic information, participant support for the program, and effects on the youth workers and the youth themselves. To ensure the analysis comprehensively addresses the research issue, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist will be followed. Upon initial evaluations, common themes across studies have already emerged. Notably, many training programs center on assisting youth only in crises and have a primary focus on identification. As more data is collected, more commonalities are likely to emerge, and important distinctions can be made regarding the effectiveness of each program and the elements that comprise them. By studying the methods, components, and outcomes of current training programs, and incorporating previous research on adolescent development, the results will guide the construction of ideal training frameworks for youth workers to respond to mental health struggles in adolescents and promote well-being and resilience within their lives.

ZAINIB AL-JAYASHI
University of Nebraska–Lincoln
Help-Seeking Preferences Among Latine Populations: Impact of Immigration-Related Stressors on Seeking Formal vs. Informal Care
Location: Catalyst

Latine individuals are the fastest-growing racial/ethnic minority group in the United States and are projected to comprise 25 percent of the population by 2050. Despite this growth, Latine immigrants continue to experience significant health disparities, many of which are shaped by immigration-related stressors. Factors such as fear of deportation, discrimination, and post-traumatic stress symptoms may lead individuals to rely more on informal care systems, such as family and community support, over formal care services within structured healthcare systems. While informal care may be more accessible and trusted, heavy reliance on it can hinder medical interventions and worsen health inequities. This study uses survey data from 212 Latine immigrants in Nebraska who completed online questionnaires assessing mental health symptoms (PTSD and depression), fear of deportation, discrimination, insurance status, knowledge of insurance coverage for mental health, English proficiency, and preferred sources of help. Help-seeking preferences were coded as formal or informal care. Path models will test hypothesized relationships between immigration-related stressors, structural barriers, symptomology, and care preferences. Although data analysis is ongoing, anticipated results suggest that greater immigration-related stress will be associated with a stronger preference for informal care, while more severe psychological symptoms may predict a preference for formal care. Additionally, structural barriers such as language and insurance coverage are expected to moderate these relationships. Findings will have important implications for tailoring mental health interventions to address both systemic barriers and cultural preferences, ultimately improving access and equity in mental healthcare for Latine immigrant populations.

ALEX TAPIA
University of Nebraska–Lincoln
Does Executive Control Mediate Associations Between Early Environment Stressors and Academic Outcomes Over a Decade Later? Examining Differences by Family Socioeconomic Status
Location: Catalyst

Purpose: Considerable research identifies early environmental stressors as predictive of later academic achievement. However, few studies examine how socioeconomic status (SES) influences later academic achievement while considering mediating pathways. Generally higher-SES is associated with higher academic achievement, while lower-SES is linked to poorer achievement. This project examines the degree to which executive control (EC) mediates associations between early environmental stressors and later academic achievement, investigating differences by family SES. Methods: Data are from a longitudinal study spanning preschool and adolescence. For this analysis, data are included from preschool (first, last measurements) and the first measurement of adolescent participation. During preschool, over half of families reported finances below the federal poverty line. Preschool environmental stressors, consisting of financial stress and resources, were measured by caregiver-report and home observation. EC was measured from a performance-based task battery at the last preschool measurement. Academic achievement was measured by caregiver-report of adolescent grades. Moderated mediation analyses using longitudinal structural equation modeling is planned to examine associations between early contextual factors, EC, and later academic achievement. Full Information Maximum Likelihood will be used to handle missing data, following best practices. Anticipated Results: We predict that EC will significantly mediate the association between early environmental stressors and later academic achievement. The degree to which this association is observed will be informed by preschool SES, such that children from higher-SES backgrounds will have stronger academic achievement, partially explained by better EC. Children from lower-SES backgrounds are expected to have poorer academic achievement via lower EC.

July 29, 2025 - 4:00 PM - Anthropology, Gender, and Ethnic Studies Breakout V: Panel B

MIRIAM AL-HAMDANI
Southern Methodist University
Islam, Healthcare, and Hesitation: Physician Trust Among Muslim Women in DFW
Location: Pinnacle

While existing research on medical mistrust has focused largely on broader racial groups such as Black or Latino communities, Muslim women are specifically underrepresented in this literature. This study seeks to fill that gap by examining how cultural and religious beliefs interact with systemic barriers such as discrimination and cultural insensitivity to impact physician trust. The purpose of this mixed-methods study is to explore the factors that influence physician trust among Muslim women in the Dallas-Fort Worth (DFW) area. The main research question guiding this study is: How do intersecting factors such as provider gender, cultural or religious respect, and racial/ethnic identity influence physician trust among Muslim women in the DFW area? I am using a convergent mixed methods approach. I will collect quantitative and qualitative data simultaneously using a self-administered online survey with closed and open-ended questions. I will use Excel to calculate statistical comparisons and create graphs. Qualitative data will be sorted in Excel using thematic coding by tone (positive, negative, neutral) and themes such as trust, discrimination, and cultural competence. The goal is to collect responses from around 100 Muslim women across varying racial and ethnic backgrounds. Preliminary results are expected to reveal patterns in how participants describe their experiences and how these relate to their survey responses. By highlighting injustices women face, I plan to use my findings to educate and support these communities and promote more inclusive, culturally respectful care.

MARIAME KOUROUMA
University of Minnesota - Twin Cities
How Race Shapes Future Orientation in Sexual and Gender Minority Young Adults
Location: Pinnacle

People of color who also identify as sexual and gender minorities (SGMs), often face challenges related to their compounding experiences of racism and heterosexism. These compounding stressors can lead to serious mental health issues such as depression, anxiety, substance use, and suicidal thoughts. Young adulthood (ages 18-25) is a sensitive period wherein these issues may develop due to normative developmental processes associated with identity destabilization, exploration, and crystallization. An important, yet often overlooked component of these developmental processes, is future orientation: the ability to think ahead, set goals, and imagine a better future. Understanding how young SGMs of color view their future is important in supporting their long-term well-being. Previous research on adolescents suggests that positive future orientation is associated with resilience, mental well-being, and goal achievement. However, there is limited research on how racial identity influences future orientation among young SGMs of color. In order to address this critical literature gap, we aim to answer the following research question: How does race influence the future orientation of SGMs of color? We will explore how racial identity influences future orientation in the lives of young adult SGMs, with a specific focus on how their narratives of the future, their goals, challenges, and expectations differ from their white counterparts. We are currently conducting qualitative interviews with a diverse sample of young SGM's (n=40: 10 Black, 10 Latinx, 10 White, and10 Asian), which we will analyze using descriptive phenomenology to understand participants lived experiences. The result is pending.

KAT JENSEN
University of Minnesota - Twin Cities
Attitudes towards democratic norms among young American men: Examining the interaction between age, gender, and educational attainment
Location: Pinnacle

As the descent into authoritarianism has become salient in the United States, concerns over democratic backsliding have grown. Public attitudes toward democracy are crucial to understanding the trajectory of a nation's response to encroaching authoritarianism. This study focuses on the unprecedented antidemocratic beliefs of the younger generations of Americans. More specifically, the demographic of young (aged 18-40), non-college educated American men show the least support for democratic norms and are also the main demographic of those involved in the "manosphere." This study aims to provide a more comprehensive examination of attitudes toward democratic norms than previous studies by examining the interaction between age, gender, and educational attainment in attitudes toward democratic norms. "Interaction" means that the impact of age depends on gender, and the impact of age and gender depend on college attainment. To do this, data from two 3-wave panel studies conducted by YouGov from 2020-2021 and Bovitz from 2022-2023, along with a cross-sectional Bovitz study conducted in 2025 were analyzed using software from R Studio and Stata. Participants answered batteries of questions that asked about their beliefs toward democratic "rules of the game," partisan violence, partisan spite, authoritarian rule, and conspiratorial thinking, as well as about attitudes toward gender, including hostile sexism, belief in sexism shift (the belief that men are the victims and women the perpetrators of sexism), and separate spheres ideology (the belief that men and women should occupy different roles in society). Results are pending but will be available by Fall 2025.

CAROLINA HERNANDEZ
Loyola Marymount University
Training Professionals To Partner With Families
Location: Pinnacle

Professional training in effectively forming positive partnerships with families from marginalized communities is needed in School Psychology graduate programs to answer the call for social justice-aimed approaches in education. However, there is limited research on graduate training with a focus on culturally responsive practices.This literature review examined the Family as Faculty (FAF) pedagogy and a qualitative study that involved two parent instructors and eight first-year graduate students who participated in interviews or focus groups to reflect on their experiences with the FAF- based preservice training. This review aims to highlight the emphasized themes found in the reflections given by parent instructors and graduate students that illustrate both family outcomes and student outcomes. This review draws on Dr. Aceves and Dr. Katic's paper in School Psychology Review, Training "with" Families: Transforming Social Justice Principles into School Psychology Practice and the qualitative data collected in its administered study (2025). Within the analysis of family outcomes, the themes of "Passionate about Helping," "Observing Appreciation for their Contribution," and "FAF Family Transformation" were found. Within the analysis of student outcomes, the themes of "Specific Strategies / Approaches," "Learning and Awareness," "Cultural Identity," "Lasting Effects," and "Family Observation / Hopes" were found. Given the positive impact found in the parent instructors and graduate students' reflections, this review proposes a longitudinal study where post-professional training alumni employed as first year school psychologists in K-12 settings can be periodically interviewed on how they partner with families and whether it stems back to their FAF training.

July 29, 2025 - 4:00 PM - Chemistry and Biochemistry Breakout V: Panel A

ANTHONY VASSALLO
Augsburg University
How does particle composition affect organic aerosols?
Location: Odyssey

Limonene and its derivatives are naturally occurring volatile organic compounds (VOCs) that largely contribute to the formation of secondary organic aerosol (SOA). SOA contributes to particle growth and also affects cloud formation and human health. Understanding the growth and formation of SOA improves our understanding of VOC oxidation. This is important for predicting air quality, SOA formation, and the impacts on the environment. We study the formation of SOA particles in a flow reactor by measuring the growth of a seed particle in the presence of limonene (or one of its derivatives) and the gas phase oxidant OH, generated via photolysis of HONO. We also consider how the acidity of the seed particle affects SOA generation. Initial results show an increase in the SOA yield with the oxidation of the limonene derivative. Our data shows another SOA mechanism, a chemical or physical uptake of some organics onto sulfuric acid seed particles without OH radicals.

JIMENA MARTINEZ-OLIVARES
St. Edward's University
Prediction and Formation of Electron Donor-Acceptor (EDA) Complexes from Katritzky Salts
Location: Odyssey

Electron donor-acceptor (EDA) complexes are defined by their ability to absorb visible light. A single-electron transfer event in the complex, triggered by light excitation, generates radical ion intermediates. The formation of EDA complexes is of interest, as it generates radicals in mild conditions without the use of expensive photocatalysts using bench-stable substrates. This research began by employing density functional theory (DFT) to calculate steric and electronic descriptors of synthetically relevant molecules, such as Katritzky salts. A machine learning model, using a classification algorithm, then predicted the formation of EDA complexes. These predictions were verified experimentally to improve the efficacy of the model. Overall, this project investigated the formation of EDA complexes from Katritzky salts using a model with future widespread scientific use to aid the design of new reactions in organic chemistry.

LEO LIU
University of Wisconsin - Madison
Covalent Adaptable Networks: A New Class of Recyclable and Durable Polymers
Location: Odyssey

Polymers, or plastics, typically fall into two categories: thermosets, which are strong and heat-resistant but non-recyclable, and thermoplastics, which are recyclable but mechanically weaker. In the past decade, researchers have developed a new class of polymers—Covalent Adaptable Networks (CANs)—that combine the strengths of both. CANs maintain the durability of thermosets while allowing reshaping and recycling like thermoplastics. In this ongoing project, we explore a novel synthesis method that uses formamide-functionalized methacrylate (FEMA) to create polyimine CANs. This approach broadens monomer compatibility and enables more convenient and versatile fabrication of CANs.

MIA CALVILLO
University of California, Los Angeles
Molecular Disruptors: Quantum and Classical Modeling of Per- and Polyfluoroalkyl Substance Binding to Peroxisome Proliferator-activated Receptors
Location: Odyssey

Structurally engineered for their unique chemical properties, per- and polyfluoroalkyl substances (PFAS) are widely used in industrial and consumer applications. However, the same properties that make them commercially valuable, such as thermal stability, hydrophobicity, lipophobicity, and surfactant behaviors, also contribute to poorly understood consequences. These range from environmental persistence to system-wide biological disruption. Their bioaccumulation and competitive binding behaviors are largely attributed to their fluorinated alkyl structure, which confers exceptional conformational stability and long biological half-lives. Now detected in the bloodstreams of nearly all Americans, it is imperative to understand how their molecular architecture governs receptor interactions and binding before large-scale health effects become irreversible. In particular, their capacity to disrupt signaling pathways mediated by peroxisome proliferator-activated receptors (PPARs) has linked them to thyroid dysfunction, hepatotoxicity, and carcinogenesis. To better understand their biological and toxicological implications, this study employs ab initio quantum mechanical calculations and free energy perturbation methods to characterize PFAS-PPAR interactions. The objective of the project is to generate and refine molecular mechanics force field parameters informed by quantum mechanical data to support accurate molecular dynamics simulations.

July 29, 2025 - 4:00 PM - Clinical Medicine, Dentistry and Public Health Breakout V: Panel B

JADYN OPPONG
Suffolk University
Evaluating the Role of Provider Perspective and their Impact on Individuals with Sickle Cell Disease in the United States of America
Location: Innovation

Individuals affected by invisible disabilities, such as Sickle Cell Disease (SCD), have additional challenges beyond the physical manifestation of their disease, which is otherwise unknown externally. SCD patients continually consider disease manifestation in everyday life and experience varying degrees of disease perception in and out of the hospital environment. Additional considerations of a patient's other intersecting identities, such as race and cultural identity, call attention to the sociological landscape of the United States of America. The dynamics observed within this landscape can be seen through the symbolic interaction of these identities with the invisible disability identity, in which a compounding effect from intersectional interactions substantiates the impact of stigma on an affected individual's quality of life. Healthcare providers are the connecting piece between patients and the American healthcare system. A provider's ability to offer care reflects the role of impact on disease management and resulting quality of life through ongoing provider-patient relations. Through a secondary literature review of peer-reviewed journals, the symbolic interactions of invisible disability, disease perception, and the intersecting identities of race and cultural identity, factoring in their resulting impacts, are analyzed within the scope of SCD. Additionally, an experiential learning approach will be utilized to provide the expert opinion of providers regarding their perspective of SCD, as assessed within the emerging themes of the literature review.

RAMIN AREEB
Eastern Michigan University
Disparities Between Desi Populations and the Michigan Healthcare System In the Metro Detroit Area
Location: Innovation

This study examines the healthcare disparities faced by the Desi population (including individuals of Indian, Pakistani, Bangladeshi, Sri Lankan, Nepali, and other South Asian descent) aged 12-50 in the Metro Detroit area. Despite the ever-growing population of South Asian communities in the United States, research on their interactions with Michigan healthcare remains very limited. The lack of consistent reports, population-specific studies, and overall popularity of the discussion proves this. Using a survey-based methodology, this study will collect accounts from participants regarding their healthcare experiences, perceived inequities, and barriers to accessing high-quality medical services. The data will later undergo a thematic review to identify recurring patterns, including issues related to affordability, insurance coverage, cultural or linguistic barriers, and provider biases. If the survey data proves insufficient, a systematic review of existing literature will be conducted to provide additional insights. The anticipated results are expected to reveal significant healthcare gaps, including underrepresentation in medical research, lack of culturally competent care, and disparities in preventive health measures. By researching these challenges, this study aims to contribute to the existing data gap on healthcare equity and inform policy improvements that enhance access and quality of care for the Desi community. Future research could expand on these findings by integrating deeper qualitative interviews, community-based interventions, or policy reevaluation to develop targeted solutions for reducing disparities in healthcare access and outcomes.

ANNA AGUILAR
Westminster University
Avoiding miscommunication by identifying best interpretation tools
Location: Innovation

In an increasingly linguistically diverse healthcare population, effective communication between providers and patients is crucial to achieving quality care. According to Utah's language data report, approximately 15% of Utah residents older than age 5 speak a language other than English at home. One-third of that population reports speaking English less than "very well" and prefer communicating through their primary language, making interpretation services increasingly important (Jinadasa et al., 2022). The purpose of my study is to identify which interpretation tool (e.g., audio/video, in-person) is the most effective and provides the safest communication interaction between those who need translation services and their healthcare team. A 15-question survey will be handed out to a variety of different healthcare workers that includes Likert scales, multiple-choice, and free-response questions. These questions will be regarding the different types of interpretation tools, their challenges, and perception of their experiences using the tool. Once survey data is collected, I will conduct a mixed methods analysis, which includes percentage data and thematic analysis. The results of this will allow for a discussion about which tool is most effective for safe communication. In addition, it will provide a foundation for further investigation into the patient's preference for translation services, including whether or not translation tools contribute to patient anxiety, satisfaction, and a clear understanding of healthcare events.

CARLOS RODRIGUEZ
University of California, Los Angeles
Mental Health Impacts Of Trauma and Sociopolitical Threats on Latine Adults During the 2024 Election
Location: Innovation

Deep political polarization and anti-immigrant rhetoric frequently occurred during the 2024 U.S. presidential election, sparking fears in many members of the Latine communities of hate crimes and deportation. Concurrently, prior research indicates that cumulative individual-level trauma exposure is positively associated with mental health ailments, especially when co-occurring with sociopolitical threats. More specifically, Latine individuals may experience increased emotional exhaustion and impairment compared to other racial/ethnic groups due to stress related to immigration-related policy fears. The present project examines 1) whether cumulative individual-level trauma exposure is associated with heightened fear about public safety, emotional exhaustion, and functional impairment in the context of the 2024 election, and 2) whether these effects are moderated by Latine identity. Data were collected from an ongoing, longitudinal, probability-based, nationally representative sample of 3,392 U.S residents from the NORC AmeriSpeak Panel. Surveys were administered during the 2024 U.S. election (10/11/24 - 12/02/24). Using multivariate regression, cumulative trauma exposure and covariates (e.g., age, gender, education) will be examined as predictors of public safety fears, emotional exhaustion, and functional impairment. To test for amplification effects in those identifying as Latine, an interaction term of trauma exposure and Latine identity will be added to the model. Public health implications include how trauma and sociopolitical stressors intersect to worsen mental health.

July 29, 2025 - 4:00 PM - Humanities Breakout V: Panel C

SIMEON HAMMOND
Westminster University
From Humanist to Scientific Socialism: Continuity in Marxist Theory
Location: Pathways

In the mid 20th century two opposing strains of Marxism emerged out of the political turmoil following the second world war. First was Marxism Humanism, a product of the disillusionment felt by many socialist regarding the policies of the Soviet Union. Marxist Humanists emphasize the role of human agency and ethics in class struggle. They believe that at the core of class struggle is the desire to make society a more free, equal, and ethical place. Much of their philosophy is rooted in the early writings of Karl Marx. Second is Structural Marxism. Structural Marxists claim socialism to be a rigid scientific method of analyzing history and economics. They emphasize the role of larger systems such as state institutions and ideological structures while arguing that Marxism needs to be purged of all its humanist character. For nearly a century these two strands of Marxism have been at odds with one another, resulting in a fragmentation of revolutionary potential based on ideological lines. This research will conduct a comparative document analysis of key texts from Karl Marx as well as other prominent humanist and structural Marxist. This will involve close readings, specifically symptomatic readings which involve addressing the underlying presuppositions to reveal the unconscious assumptions present within a text. It will analyze both lines of thought to highlight the differences and potential similarities in how they view class struggle, the material conditions of society, and the building of socialism. The goal is to explore the idea that the two strands of Marxism need not be antagonistic to each other. This is in an effort to explain that the scientific critique of capitalism found in Marx's later works like Das Kapital is presupposed by the humanist character of his early writing. Furthermore, illustrating a continuity in his thought that is essential in developing a more informed understanding of his theory that can be applied to a modern critique of capitalism.

BETTY KALUNGA
Westminster University
Behind the Curtains: Bridging method acting with ethical practices
Location: Pathways

Method acting, famously popularized by Lee Strasberg with the roots of Konstantin Stanislavski's system, focuses on emotional authenticity as well as psychological immersion. While the technique continues to shape and transform film and theater, it still raises serious issues regarding the emotional weight it places on actors. A 2019 study literary review outlines that blurring the boundaries between the character and oneself can result in changes in personality, speech, physicality, or even dissociation. Drawing on affective memory and personal trauma for a performance can reopen closed wounds. What are the psychological consequences of using method acting, and what are some basic techniques that can be used as aftercare? I will use a qualitative case study methodology and have chosen three Black actors: Forest Whitaker (The Last King of Scotland), Danielle Deadwyler (The Piano Lesson), and Lupita Nyong'o (12 Years a Slave), whose performances involved intense emotional immersion into racially confined roles. Using media and documented analysis (recorded interviews, shared writings, and news articles), I will explore the impact these historic roles had on their mental health and performance. My focus will be on the year prior to, during, and the year after each of their productions was filmed. My emphasis for this case study will be on noting mental shifts, speech, and overall perceptions of identity. This research will highlight the importance of preventing burnout and supporting actors ' mental health.

MALIA MILLER
University of Minnesota - Twin Cities
Framing the Debate on Plea Bargaining: Reform, Rhetoric, and Resistance
Location: Pathways

The United States imprisons more people per capita than any other nation. However, in the 2000s, movements to reduce incarceration gained support across the political spectrum. While scholars have studied reforms to correctional budgets and sentencing laws, research on plea bargaining reform remains scarce. Understanding these efforts is crucial, as plea bargaining is a main driver of mass incarceration and mass criminalization, and also resists broader reform trends. While previous research shows the 2008 recession pushed politicians to lower incarceration costs, reforming plea bargaining could do the opposite by increasing scrutiny of deals, expanding defendants' rights, and raising the number of trials. This study examines how reformers justify altering a system seen as efficient and cost-effective during an era of "cheap on crime" politics. Using frame analysis, I explore how actors across the political spectrum frame plea bargaining's problems, potential solutions, and broader ideas about justice and punishment. As a case study, I analyze a collective initiative by a politically diverse set of legal actors and think tanks, who, after a series of meetings, published a collection of articles on plea bargaining reform in the 2019 Federal Sentencing Reporter. Using qualitative analysis software, I employ inductive and deductive coding to identify the frames legal actors use to discuss these challenges and reforms. By mapping the rhetoric in these debates, I contribute to recent calls for research on penal reform discourse, highlighting areas of agreement and disagreement in approaches to reform.

GELEELA CHERNET
University of Texas at Austin
Hearing From Parentally Bereaved Emerging Adults: A Qualitative Study
Location: Pathways

The intersection of parental bereavement and emerging adulthood is a rare occurrence, yet in the experience lies a vast amount of unstudied knowledge. The questions, concerns, and emotions of this specific population have yet to be fully understood within the literature. Outside of the clinical setting, there is a lack of research focusing on the perspective of parentally bereaved emerging adults, unlike available research on bereaved young children. Thus, this research aims to shift the spotlight to the group of individuals who are entering a new stage of development alongside coping with the loss of a parent. The participants in this study are between the ages of 18 and 25, who are in the stage of 'emerging adulthood' according to Jeffry Jenson Arnett (2000). Semi-structured interviews will be conducted to understand the lived experiences of their grief, as well as a journal submission by participants with the questions they have in relation to the loss of their parents with the support of guiding questions. Thematic analysis will allow for data to then categorize the questions made by the bereaved group of participants. The findings will provide perspective on emerging adults and their process of bereavement. This study contributes to the literature by detailing the ways in which emerging adults identify, cope with, and manage grief, which will lead to a better understanding of how grief affects their lives.

July 29, 2025 - 4:00 PM - Poster Session 3: Anthropology, Gender, and Ethnic Studies

RAYYAN CUNNINGHAM
University of Washington
Bias in AI-Generated Images of Black Women: A Study on Dehumanization and Representation
Location: Optimist

Generative AI systems like Stable Diffusion and DALL·E have transformed creative and computational fields by enabling the automated production of synthetic images, text, and multimedia content. With millions of people relying on AI daily for work, education, and personal use, these technologies are increasingly shaping digital representation and media. Despite these advancements, concerns about bias and harmful portrayals persist. In this study, I examine the social and representational factors that contribute to inaccurate and dehumanizing portrayals of Black women in AI-generated images using qualitative methods such as comparative visual analysis and thematic coding. To investigate this, I generated AI images depicting White and Black women engaged in everyday activities. To do this, I used a Stable Diffusion codebase to create images based on text input; I then analyzed these images through racial and gender comparisons to assess inaccuracies and biases. Preliminary results reveal discrepancies in the depiction of Black women compared to White women performing the same tasks. Images of Black women were more frequently oversexualized, depicted with less context-appropriate clothing and exaggerated body features. These patterns suggest underlying biases in the training data. To further explore these disparities, I will generate images across diverse scenarios and apply qualitative coding and training data evaluation for deeper analysis. This study underscores the need for more equitable AI training data and stricter bias mitigation strategies, contributing to responsible AI governance and policy development.

ISABELLA MCCOLL
University of Wisconsin - Whitewater
Teachers Opinions on What Supports Are Necessary for Low Income Students in Middle Schools to Achieve Academic Success in Wisconsin
Location: Optimist

Over the years, progress has been made in the world of education. New strategies have been developed to reach students' potential. However, despite all of the progress, there is still a gap between low-income students' academic success rates versus their more affluent peers. While there are many ideas for why we are seeing this gap, my research focuses on informing educators on how to support low-income students. The research aims to understand the academic success gap between low-income students and their more affluent peers and to determine supports that may offset this gap. The particular focus of the research aims to gain a deeper understanding of why we are seeing a gap in academic success rates. This research seeks to find ways to inform educators on how to support low-income students. The study will focus on identifying the support low-income students need to improve their academic success. To identify these supports, I will seek the opinions of Wisconsin middle school teachers who work with low-income students. In this study, I will be reviewing the research on the academic success seen in low-income students in comparison with their more affluent peers. Through my literature review, I will identify the barriers faced by low-income students across the United States along with resources to offset the barriers. With this information, I will conduct interviews with middle school educators in Wisconsin. Through this investigation, I hope to find stronger resources that will aid low-income, middle school students in Wisconsin in achieving better academic success.

July 29, 2025 - 4:00 PM - Poster Session 3: Biology

ZOE KUHN
Wesleyan University
Characterizing the Behaviors of Arousal in a Mammalian Hibernator
Location: Optimist

Thirteen-lined ground squirrels (Ictidomys tridecemlineatus) undergo seasonal hibernation consisting of two distinct physiological states, including torpor and interbout arousal (IBA). Torpor is characterized by inactivity, low metabolism, and a drastically low body temperature (Tb). Weeks-long torpor bouts are interrupted by spontaneous arousal periods (IBAs) that last up to 48 hours, when Tb and other internal functions resemble those of the active state. When initiating an IBA, squirrels employ both non-shivering and shivering thermogenesis to rapidly rewarm Tb from 4 degrees C to 37 degrees C over a few hours. Currently, little is known about the ethology of the torpor-arousal transition, such as the sequence of behaviors employed by hibernators to rewarm. Here, we examine the behaviors of the torpor-arousal transition with induced arousal and continuous video monitoring. We record the time and Tb at which major behaviors, such as shivering, eye-opening, and righting, occur. We also explore how the sequence of behaviors changes across three distinct periods encompassing early, mid, and late hibernation. Finally, we compare arousal temporal dynamics between males and females. Our results show that behaviors occur sequentially across the torpor arousal transition, with shivering starting as early as 12 degrees C Tb, and that rewarming dynamics change across hibernation as well as between the sexes. Our results provide a better understanding of the fine structure of behavioral state transitions across the span of months-long hibernation. Controlled thermoregulation has applications for human health, including therapeutic hypothermia, longevity, and space travel.

MARIEMA TALL
Wesleyan University
Examining the correlation between bird visitation rates and the number of phloem feeders across oak trees
Location: Optimist

Plants rely on predators for protection against herbivores, also known as indirect defense. This predation works alongside a plant's direct defenses, which include toxic chemicals in a plant's leaves. Our lab has previously found an increased caterpillar abundance in association with phloem-feeding insects on white oak trees, and that bird predation compensated for the increased caterpillar abundance within these same forests. When phloem feeders and caterpillars are present on the same branches, the plants' emission of volatile compounds, which work as odor cues for plants and animals, is modified. Birds can detect these changes and use such signalling to preferentially forage for caterpillars on the branches with more phloem feeders. These ideas are the precursors of our current research; do bird visitation rates correlate with the numbers of phloem feeders across oak trees? We hypothesize a positive correlation between bird visitation rate and the number of phloem feeders on oak trees. Using a mixed methods approach, we piloted the tracking and synthesis of the relationship between white oak, insectivorous animals, and phloem-feeding insects. Statistical analyses will be done using the synthesis of data collected (i.e., unique branches, branch foraging, bird species, the presence of phloem feeders, time spent foraging, and observed predation). While we anticipate our findings to be significant, the future direction of this research entails the use of cameras. This will allow for easier tracking of these tri-trophic interactions, meaning more extensive data collection, enabling more powerful testing of our hypothesis.

July 29, 2025 - 4:00 PM - Poster Session 3: Chemistry and Biochemistry

ADAM JALYO
Boise State University
Introduction to Circuit Design and Architecture for Emerging Nanoscale Technologies
Location: Optimist

This research addresses the critical challenge of sustaining advancements in computational performance and energy efficiency in the wake of Moore's law reaching its physical limits.□Since computer systems face increasing demands driven by data-intensive applications such as artificial intelligence workloads, alternative nanoscale design paradigms are essential. This study discusses Quantum-dot Cellular Automata (QCA) as a potential post-CMOS technology, offering a different approach to circuit design based on quantum dot arrangements and electron interactions governed by Coulomb repulsion. The investigation begins with a foundational understanding of QCA's building blocks, including cell architecture, binary encoding mechanisms, and majority gate logic. To illustrate QCA's practical potential, three to several core circuit designs— explored and analyzed. These designs serve to demonstrate how QCA-based systems may replicate or surpass the functionality of traditional silicon-based architectures. The study focuses on evaluating QCA through key performance metrics: speed, power consumption, and spatial density. By comparing these metrics against the limitations imposed by classical CMOS scaling, this research aims to assess the viability of QCA in addressing critical bottlenecks in modern computing systems. Ultimately, this work contributes to the exploration of novel design paradigms capable of enabling future generations of high-performance, low-power computing architectures beyond the capabilities of conventional silicon technologies.

LIZBETH MENCHU-ARPI
Rider University
Studying the effect of Solvent and Concentration on the Barrier to Internal Rotation of Dimethyl Nicotinamide
Location: Optimist

Dimethyl nicotinamide is a molecule that contains an amide C-N bond, which exhibits a barrier to internal rotation about the C-N bond. As a result, the hydrogen atoms on the amine group appear chemically non-equivalent at room temperature. This non-equivalence is demonstrated by NMR spectroscopy as the two types of hydrogen atoms are displayed as two distinct peaks in the NMR spectrum. Our lab has previously demonstrated that the barrier to internal rotation of dimethyl nicotinamide is affected by the nature of the solvent it is dissolved in and the concentration of the compounds within the solution. The purpose of this study is to continue the work of examining how the chemical environment in which dimethyl nicotinamide is dissolved affects the barrier to internal rotation. Specifically, these experiments will focus on examining how the solvent and concentrations affect the magnitude of the barrier to internal rotation about the C-N bond. This will be accomplished by collecting variable temperature NMR spectra which will lead to an analysis of the spectral peaks as a function of temperature. The analysis will yield a value of the barrier to internal rotation that will be compared to the barriers obtained for different solvent/concentration samples.

SOPHIA ANSELLO
The College of St. Scholastica
Caffeine-induced chemical stimulation impact on AMPK enzyme in C2C12 cells under environmental stressors
Location: Optimist

Activated Protein Kinase (AMPK) is a key enzyme that regulates cellular energy homeostasis. In this way, it is activated under metabolic stress, such as low glucose. This study aims to explore how caffeine, a stimulant that activates muscle contraction responses, can modulate and/or regulate AMPK activity and how this effect is influenced by glucose availability. It is predicted that caffeine will increase AMPK activity in C2C12 cells with a greater response to low glucose conditions. To test this, C2C12 myoblasts will be grown for 4-5 days in either high- or low-glucose media. Cells will then go under a 0.05mM caffeine treatment for 24 hours. Buffers will be prepared to perform an AMPK enzyme assay. AMPK enzyme will be measured using the SAMS peptide-based colorimetric kinase assay. Malachite green will be used as a phosphate detection agent, and read at 620-660nm. Additionally, protein concentrations within the samples will be determined using the Bradford assay protocol. Results from this study will provide insight into metabolic regulation relating to cellular physiology and environmental stressors like glucose availability and caffeine-influenced metabolic enzyme activity in skeletal muscles.

YOSUN GEZAHEGN
University of Washington
A High-Throughput Study of Two Macaque Species: The Relationship Between Cognitive Ability, Age, Health, and Age-Related Disease
Location: Optimist

Neurodegenerative diseases, including Multiple Sclerosis, Alzheimer's Disease, Parkinson's Disease, and Dementia, disproportionately affect older adults and represent a growing public health challenge amid a globally aging population. Early intervention remains challenging, as clinically relevant symptoms often appear only after significant neurological deterioration. This study seeks to identify early-stage biomarkers associated with cognitive decline and neurodegenerative disease using macaque monkeys as a traditional aging model. We hypothesize that measurable cognitive and physiological changes occur before the onset of clinical symptoms and can serve as early indicators of age-related neurodegenerative conditions. To test this, I supported efforts to engineer a high-throughput cognitive testing device that allows for macaques to complete behavioral tasks from within their home enclosures. These devices serve both as enrichment tools and as a tool to quantify cognitive performance across various domains. Simultaneously, blood and cerebrospinal fluid samples were collected to assess biomarkers of inflammation and immune activation. Alongside other lab members, I gathered extensive cognitive performance data alongside physiological samples from a diverse macaque population. Preliminary observations reveal age-related differences in cognitive outcomes and immune markers, suggesting emerging patterns of decline that warrant further analysis. By linking cognitive outcomes with biological data, with the goal in mind to identify biomarkers predictive of early cognitive decline, these insights could advance early detection methods for neurodegenerative diseases and inform research in human-centered aging and neurological research.

July 29, 2025 - 4:00 PM - Poster Session 3: Humanities

MYA WALLACE
Eastern Michigan University
Slang Spreading and Social Media
Location: Optimist

This research proposal seeks to investigate the relationship between the rate of slang usage and how it crosses between communities. It is hypothesized that the more that a slang word becomes popularized online, the further it spreads, and the faster it either enters into the long lasting public lexicon, or gets regulated to disuse. Opposed to before there was as much digital communication, when slang was largely spread by conversations between individuals, radio or television, not social media sites which allow for instant communication. This research seeks to understand slang in three parts, the history of the word ‘slang’, how using slang words is an in-group marker, and how slang disseminating online at such a rapid rate erodes the clarity of the in-group which was previously clear to slang users. This research is relevant as slang continues to swiftly spread from living communities, to online spaces, and back into the real world to new groups of people. As new words are created, through new meanings and completely new words being used, these changes can leave a lasting impact on how individuals communicate, which is further encouraged by social media which makes up such a large portion of how individuals communicate daily.

YOKABED OGBAI
University of Washington
Scenes of Waiting: Eritrea and the Grammar of Anticipation
Location: Optimist

What does it mean to live in anticipation of violence? How can one take action when the opposing force is simultaneously ever-present and unknown? In Eritrea, decades of Italian colonization, British administration, and border-making have determined which bodies can move and which must remain fixed in space. My study examines Eritrean cultural practices as well as questions of embodied knowledge; how movement is restricted, how performance is policed, and ultimately, how the state leverages uncertainty over its populations to create geographies of containment in, through, around, over, and between the body. Using critical discourse analysis, alongside ethnographic interviews, Eritrean literature, media, policy documents, and other forms of visual culture that emerge from the African diaspora, I trace what I call "the waiting state": a form of life suspended between the not-yet and the no-longer. Cultural practices such as traditional coffee ceremonies offer narratives that reveal both the mechanisms and limits of state power. These practices serve as alternative mapping systems, demonstrating how communities navigate state-imposed restrictions through embodied knowledge. Ultimately, this project seeks to contribute to broader understandings of Pan-African thought, from Garveyism to Négritude, by mapping the alternative worlds that emerge when fugitive aesthetics and speculative freedoms collide.

July 29, 2025 - 4:00 PM - Poster Session 3: Math, Statistics, and Physics

JONATHAN RODRIGUEZ
California State University, Stanislaus
Twinkle Twinkle Little Star, Is That Really What You Are?
Location: Optimist

The accurate separation of stars and galaxies is fundamental to many extragalactic and cosmological studies, yet it remains challenging at faint magnitudes. We present our ongoing investigation of star–galaxy classification in the Vera C. Rubin Observatory's Data Preview 0 (DP0), emphasizing the correlation between misclassification rates, object brightness, and shape parameters. By cross-referencing the DP0 source catalog with "truth" data provided by the LSST pipeline, we analyzed 750,000 objects spanning AB magnitudes from 23 to 29, grouping 250,000 from 23 to 25, 25 to 27, and 27 to 29 magnitudes, respectively. We find that while classification remains fairly accurate (>80% correct) for sources brighter than around 25 mag, misclassification rates exceed 50% at fainter magnitudes, driven in part by compact galaxies incorrectly flagged as point sources and stars that present a larger morphology. We explore the role of morphology (e.g., semi-major and semi-minor axes) to see whether shape-based cuts can mitigate these errors. The results so far suggest that such criteria offer improvements, though more advanced algorithms may be needed as Rubin scales to deeper imaging. Looking ahead, we will implement a machine-learning pipeline capable of leveraging multi-band photometry and morphology to better separate stars from galaxies in future data releases. This work highlights where and how classification errors arise and underscores the importance of robust star–galaxy separation for the full scientific potential of Rubin Observatory data.

JOHN CARLSON-YUNGA
St. Olaf College
Ground state estimation of Ising-type models using Variational Quantum Algorithms
Location: Optimist

The ground state of a physical system is the lowest energy state, which plays an important role in the determination of the zero temperature phase diagram. In this research, we utilize a Variational Quantum Eigensolver (VQE) Algorithm to numerically estimate the ground state of Ising-type Hamiltonians using the Ising Model as an illustrative example. The research project involves exploiting symmetries of the Hamiltonian to inform a better choice of variational ansatz. The variational principle states any ansatz used to estimate the ground state will always lead to an energy that is higher or equal to that of the ground state. The VQE ansatz, informed by symmetries of the Hamiltonian, provides a systematic approach for estimating the ground state by restricting the ansatz to a tractable subspace. This research aims to overcome the challenges that arise when navigating a large, onerous Hilbert space within which eigenstates of a Hamiltonian live.

July 29, 2025 - 4:00 PM - Poster Session 3: Psychology and Cognitive Science

NAYA LIBERTY
Boise State University
Understanding Medical Trauma Through Patient Narratives: A Qualitative Approach
Location: Optimist

Medical trauma is a psychological phenomenon that sometimes results from illness and/or highly stressful medical treatments, procedures, hospitalization, and interactions with the healthcare system. Medical trauma affects nearly every aspect of an individual's life, can lead to avoidance or excessive utilization of healthcare services, and may result in adverse health outcomes. In the past, researchers have documented various conditions, diagnoses, procedures, and events that may lead to medical trauma. Some researchers focus on clinically treating medical trauma and medical-related PTSD through diverse therapeutic methods. However, to date, few researchers have explored common thematic elements across the narratives of individuals who have experienced medical trauma. The scarcity of qualitative research on medical trauma narratives likely contributes to the limited awareness and understanding of medical trauma among healthcare professionals, mental health clinicians, and the general public. In this study, I am interviewing adult residents of Idaho regarding their personal experiences with medical trauma. Utilizing data derived from participant responses, I am conducting a thematic analysis to identify shared themes across various narratives and experiences of medical trauma. In the future, this research can be used to support further studies and help raise awareness of medical trauma.

FAITH LUMADUE
Southern Oregon University
Developing a situated assessment of benefactor meditation to enhance sustainable empathy
Location: Optimist

This theoretical project examined the potential for a situated assessment of empathy and compassion in the context of efforts to train compassion via meditation. Rather than measuring the generalized experiences of individuals through aggregated self-report, situated assessments measure a construct in the situations where it occurs. In this context, it is applied to form of meditation called "the benefactor practice," in which people learn to become receptive to experiences of care by calling to mind and visualizing a benefactor (e.g., a memory of a caring moment or an important person who demonstrated kindness). The situated assessment will assess the experiential qualities brought forth by the mediation in individuals and whether or not those felt qualities can enhance sustainable empathy while reducing feelings of empathetic distress. Researchers have shown that situated assessments outperform more generalized measures in predicting people's behavior in specific contexts, which is necessary for assessing the diverse range of experiences brought forth by mediations. This theoretical work will form the basis for a future empirical project to assess people's experience with the benefactor practice and its effect on empathy and compassion.

IZZY OLSON
The College of St. Scholastica
The Effects of Traditional Balance Exercises vs. Tai Chi in Older Populations in Assisted Living Communities
Location: Optimist

Falls are a significant health concern among the elderly, often leading to serious injuries, reduced mobility, and loss of independence. While exercise can not completely eliminate the chance of an individual falling, it can lead to increased stability and reduce fall risks. How do assisted living communities provide elderly populations varied opportunities for exercise to improve stability, and what exercise programs can be offered to keep them from getting bored and quitting? This study examines the effectiveness of Tai Chi and Traditional Balance exercises in enhancing physical stability and self-assurance among older adults residing in assisted living facilities. Volunteer residents (N = 8) of the Benedictine Living Community consented to participate. All participants were involved in an exercise routine at the time of the study, able to stand supported for short periods (i.e., 2 minutes), exercise without supplemental oxygen (eliminating the risk of tubing causing potential falls), and had not experienced an adverse event or fallen prior to beginning the study. Participants were randomly placed in either the Tai Chi or Traditional Balance group that met 30 minutes twice a week for 8 weeks. Initial assessments were conducted to give a baseline for the participants' balance and confidence. Questionnaires on participant confidence were collected weekly, and post-program assessments were completed at the end of the eight-week program. The study findings may contribute to the development of additional evidence-based exercise recommendations for fall prevention, providing older adults with more options and a variety of exercise regimes.

EMMANUEL OLUDAYO
University of Minnesota - Duluth
Trauma Center Trauma-Sensitive Yoga and BIPOC Communities; Can Teaching Yoga Heal Race-Based Traumatic Stress and Posttraumatic Stress Disorder?
Location: Optimist

Black, Indigenous, and People of Color (BIPOC) communities have been subjected to intergenerational racial traumatic stressors, yet lack accessibility to the means of navigating and healing said trauma. Previous research suggests the efficacy of somatic practices for the reduction of posttraumatic stress symptoms.The objective of this research is to assess the feasibility and acceptability of an Embodied Radical Healing intervention (i.e., Radical Healing integrated with Trauma Center Trauma-Sensitive Yoga [TCTSY] for BIPOC communities) and identify the preliminary effects of the intervention on race-based traumatic stress and posttraumatic stress disorder/complex posttraumatic stress disorder symptoms. This study hypothesizes that the intervention will be both feasible and acceptable and show a trend toward symptom reduction by the end of the study. TCTSY is the main somatic approach used in Embodied Radical Healing. Ten to twelve participants are recruited in each of the two rounds via convenience sampling. The participants attend the Embodied Radical Healing sessions once a week for 10 weeks. Effects of the interventions will be measured through the use of qualitative data gathered from participant interviews. This research is the qualitative portion of a mixed-method, multiphasic, single-arm, community-based, and longitudinal trail. After our interviews, consensual qualitative research approaches will be used to identify commonalities and nuances in the results of our research.

ISABELLA DIAZ
University of Texas at Austin
Vagus Nerve Improves Working Memory
Location: Optimist

Poor working memory may result in a negative response in a subject's goal directed behaviors, problem solving skills, learning challenges, and social interactions, caused by various factors. Working memory (WM) correlates with P300 amplitude, an event related brain potential measured using electroencephalography (EEG), and a higher level of WM decreases the P300 amplitude. The n back task is a cognitive test to assess the WM, specifically the P300 amplitude. This study hypothesizes that vagus nerve (vibrotactile taVNA) will increase the participants' P300 amplitude during an n back task, thus increasing their WM capacity. This study examines the differences between a control working memory while doing a two back test and a vagus nerve stimuli group on a cross over experimental design. Using the n back method, the researchers assess the EEG of the P300 wave amplitude after a brief stimulus via Python. Previous studies indicate a correlation between WM with P300 wave amplitude, N back with P300 amplitude, and Vagus Nerve with WM; hence, this research suggests a correlation between all variables. Results show that the stimulation group will have a larger P300 value compared to the control group. These results show that vagus nerve stimulation could be used to improve a user's working memory.

SERAIAH MOORE
University of Wisconsin - Whitewater
Attachment Styles and Emotional Regulation in Adult Relationships
Location: Optimist

This study investigates the impact of attachment styles on emotional expression and relationships dynamics. Based on the attachment theory, it hypothesizes that individuals with insecure attachment styles will demonstrate an increase in negative emotional expression and responsiveness in relationships. The hypothesis will be tested by conducting a survey for adults aged 18 and above using established questionnaires via the UW-Whitewater survey system. Anticipated results are expected to reveal the correlations between specific attachment styles and patterns of emotional expression and responsiveness in relationships. This research will contribute a deeper understanding of the interplay between attachment styles, emotional regulation strategies, and relationship dynamics. Future directions include developing interventions to help promote positive emotional regulation strategies and relationship satisfaction based on attachment styles.

July 29, 2025 - 4:00 PM - Poster Session 3: Sociology and Public Affairs

ZAUDI GUZMAN
Boise State University
Latinx Farm Workers: The Paradox of Satisfaction versus Exploitation
Location: Optimist

There have been extreme changes in the climate in recent years. Without sufficient legislation to provide protection in Idaho to Latino farmworkers they have become vulnerable to health risks related to climate change. Including heat exhaustion, sun strokes, dehydration, and death. Along with the dangers of physical well-being, precarity revolves around the current anti-immigrant and political climate. The state of Idaho, in particular, has blocked federal rules designed to protect H-2A workers, which will unfortunately continue to allow working violations to occur. Although Idaho agriculture and food processing contribute significantly to the state's economy, representing 13% of the Gross Domestic Product, minimal research has been done with Latinx farmworkers in this state. In this research, I received transcripts collected from 16 farmworkers in South Central Idaho during June-August 2023. These interviews were semi-structured, a bilingual study, and a part of a digital story project. Through thematic analysis in qualitative research as well as emergent coding. My current findings from an inductive analysis show a paradox with enjoying agricultural labor but then experiencing exploitative work conditions. Current themes have been gratitude, fear, and climate. The aim of this project having a storytelling component is to explore Latinx farm workers' experiences and humanize their identities with the help of the non-profit Idaho Organization of Resource Councils (IORC) in ways to share academic findings to the public. This research will further the scholarship by looking at how to improve working policies for Latinx farmworkers facing intersectional barriers on ethnicity and immigration status.

NATAIJAH KING WHITTLE
Suffolk University
A Pilot Test of a Client-Based, Returning Citizen Interview on Post-Incarceration Perceptions and Experiences
Location: Optimist

This project, within the framework of the Boston Community Violence Intervention & Prevention Initiative – Research & Evaluation Grant, focuses on the experiences of returning citizens with prior involvement in homicide-related charges involving gun violence. Collaborating with organizations such as the Transformational Prison Project and the Boston Public Health Commission's VIP (Violence Intervention and Prevention) Initiative, the research involves developing a pilot survey to explore the challenges, perspectives, and reintegration experiences of these returning citizens. By interviewing these individuals, the study seeks to develop insights for understanding their post-incarceration journey. Furthermore, it aims to support community violence intervention and prevention efforts in Boston. The project's goal is to contribute to a supportive environment that promotes successful reintegration into society for those returning citizens.

ADAYA STEWART
University of Washington
Management of Diverse Organizations and Diversity Efforts
Location: Optimist

Diversity, equity, and inclusion (DEI) efforts have grown common across the nation, with many organizations creating dedicated DEI offices and staff. The approach to managing DEI differs across organizations, but examining the perspectives held by DEI executives unveil how these groups think about the importance of their DEI work, and how that value is translated to stakeholders. With guidelines surrounding DEI practice materializing, it is important to examine the ways in which DEI communication influences the progression of DEI efforts in the workplace. I sought to understand if DEI initiatives promote positive outcomes in work environments by examining the language used by those holding executive positions in DEI practice to convey the goals and intentions of their initiatives. I compiled DEI statements and derived commonly used words, entering this information into Linguistic Inquiry and Word Count (LIWC; pronounced "Luke") software to create dictionaries for qualitative analysis. I then analyze transcriptions of interviews with DEI executives to identify the patterns of language used to articulate the DEI work being done, as well as the attitudes associated with the work. While interviews are still in progress, preliminary thematic analysis indicates that the common words used to describe DEI work fall under either "benefits" or "challenges" categories. As DEI executives grapple with the changing landscape of their work, examining perceived success of their programs will be essential to understanding the impact of DEI initiatives in the workplace.

SIRRYE RETELLE-BRANCH
University of Wisconsin - Whitewater
The Impact of Economic Policies on the Wealth of Black Generation Z Americans
Location: Optimist

Since Covid-19, inflation has been running rapidly—not only throughout the U.S. economy but also through the bank accounts of millions of Americans. But those who have been impacted the most are those of the more recent generations, as well as Black Americans; thus, Black Gen Z Americans are at the forefront of this recession. Furthermore, the existing economic policies that affect tax laws, student loan debt, and housing subsidies are making it increasingly difficult for individuals to accumulate wealth. However, this isn't by coincidence, as many Black Gen Z Americans are affected by the economic disparity that is created because government legislation disproportionately affects this group. In this research I will use mixed methods to illustrate how Black Americans are marginally affected by certain economic policies and how changes in the way Blackness is perceived can improve economic legislation. Moreover, I will use surveys, interviews, and statistics to demonstrate the depth of this disparity and how specifically it can be reformed.

July 29, 2025 - 4:00 PM - Psychology and Cognitive Science Breakout V: Panel H

KAHLEESIA CHAPMAN
University of Minnesota - Twin Cities
Ethnic Identity, Flow, and Flourishing: A Cross-Sectional Analysis Among Black Women
Location: Discovery

Ethnic identity is consistently associated with well-being (Sattler & Zeyen, 2021) and may mitigate negative psychological symptoms (Cotter et al., 2015). Few studies have examined ethnic identity in relation to positive psychological symptoms in Black women–including flow and flourishing. This study investigated flow—a mental state of deep focus and enjoyment (Csikszentmihalyi, 1990)—as a mediator of the association between ethnic identity and flourishing.Approximately 216 Black women ages 18-79 completed a survey about their health behaviors at baseline and 6-month follow-up. Over 65% (n=141) of participants completed the follow-up. Measures assessed demographics, ethnic identity (Phinney & Ong, 2007), flow (Szymanski & Henning, 2007), and flourishing (Deiner et al., 2010). A multiple regression tested whether flow would mediate the association between ethnic identity and flourishing cross-sectionally and longitudinally (while controlling for baseline flourishing). The overall cross-sectional model was significant, $F(2, 209)=43.17$, $p<.001$; ethnic identity was positively associated with flow ($p=.002$) and flourishing ($p<.001$), and flow was positively associated with flourishing ($p<.001$). While controlling for flow, the association between ethnic identity and flourishing was diminished ($p<.001$). The indirect effect was significant, suggesting partial mediation (.08, 95%C.I. [0.02, 0.17]). Conversely, in the longitudinal model ($F(2, 138) =21.78$, $p<.001$), ethnic identity did not significantly predict flow or flourishing. The indirect effect was also not significant. However, baseline flourishing strongly predicted later flourishing ($p<.001$). Flow partially explained the association between ethnic identity and flourishing cross-sectionally, but not longitudinally.

KELLY BARBER
University of Oregon
The Impact of Intimate Partner Violence on Black Queer People and Its Correlation to Incarceration Rates.
Location: Discovery

Black queer individuals face unique and often overlooked vulnerabilities at the intersections of racism, homophobia, and economic oppression. These intersecting identities make the risk of experiencing intimate partner violence (IPV) higher, simultaneously increasing the likelihood of incarceration or being arrested in the aftermath. This research will investigate how systemic factors like, discriminatory policing, social stigmas, and inadequate survivor services contribute to disproportionately high rates of IPV and incarceration rates among Black queer individuals. Utilizing a mixed methods approach, this study draws on existing national data sets, including the National Intimate Partner and Sexual Violence Survey and the National Incident-Based Reporting System, to analyze trends related to IPV and incarceration. To support these statistics, qualitative narratives from Black queer survivors are used to highlight their lived experiences. By situating these findings within a Black feminist framework, this research seeks to illuminate how structural violence and institutional neglect perpetuate cycles of trauma. Overall, this work aims to inform future advocacy efforts, improve survivor services, and challenge policies that disproportionately harm Black queer individuals.

PERCY CONRAD
University of Oregon
Prideful or Prejudiced: analyzing LGBTQ+ discourse online
Location: Discovery

Identity development is an important function of adolescence (Erikson, 1968). This is especially true for LGBTQ+ youth as they discover their differences compared to their heterosexual or cisgender peers. As more youth identify as LGBTQ+, social networking applications – like Facebook, Instagram, TikTok or X – have quickly established a dominant presence in the lives of kids and teenagers since their rise twenty years ago. The prevalence of these applications indicates a shifting developmental landscape, where young people are developing critical functions – like identity formation and exploration – across both the virtual world and "real-life" (boyd, 2008; Pérez-Torres, 2024). With these effects, social media has become especially prevalent in LGBTQ+ youth identity development; it's critical to study the messages youth are exposed to online. Using semi-structured interviews (N=32) conducted in 2021 with a diverse group of youth (ages 15-24, M=20.8), this study consists of a qualitative content analysis of social media influencers' (N=28) accounts, coding for themes related to the LGBTQ+ community, including LGBTQ+ representation, advocacy, anti-sexual minority rhetoric and anti-transgender rhetoric. The content posted by politicians and social media influencers are compared. While these findings are limited to the year the interviews were conducted, they highlight specific issues for LGBTQ+ people living in the digital age.

SARAH DIAZ
University of Nebraska–Lincoln
Yes, but not really. The relationship between consensual unwanted sexual experiences and body image in Queer women
Location: Discovery

Consensual unwanted sexual experiences (CUSE) are common for people in the U.S., especially women. Previous research has mainly focused on the motivations for consenting to unwanted sex as well as analyzing the frequency of these experiences. However, these articles have exclusively looked at these relationships in heterosexual and cisgender women in the United States instead of including LGBTQ+ individuals. The literature surrounding CUSE has established a base for understanding this kind of sexual interaction, but it is also important to study its relationship to aspects of health and wellbeing, like body satisfaction. Additionally, research is needed to examine how CUSE may be related to body image among women who are not heterosexual and cisgender. Therefore, the current study focuses on the association between experiencing consensual unwanted sex and body satisfaction for Queer women (i.e., LGBTQ+). This study used survey data from 452 Queer women and gender expansive individuals in the U.S. We ran an independent t-test to determine the difference in body satisfaction (using the Body Shape Questionnaire; BSQ) between those who had and had not consented to unwanted sex. We found that women who had experienced consensual unwanted sex reported more body dissatisfaction, compared to those without these experiences. Our results suggest that these experiences, which have been previously deemed harmless, could have potentially negative consequences for wellbeing. Knowledge of this relationship could help to improve education and prevention practices for future generations of LGBTQ+ individuals.

July 30, 2025 - 9:00 AM - Arts and Multimedia Breakout VI: Panel B

NATALIA TORRES
University of Wisconsin - Madison
Collective Memory and the Digital Space
Location: Pinnacle

Colombia's contemporary political and social landscape is a direct result of the nation's complex and contentious history. Memories of a tumultuous past, shaped over decades of armed conflict, have become integral to Colombia's national consciousness. While the 2016 peace agreement can be understood as a point in time at which Colombia transitioned into a post-conflict society, there is considerable research needed within the region to examine further how the country has addressed and come to terms with its past. This research aims to expand on existing scholarship surrounding the role of memory in post-conflict societies, especially in the political sphere. Through the framework of collective memory, this research examines how young Colombians use and interact with memory to inform their understanding of the past. Instead of exploring this phenomenon through traditional spaces of memory, such as museums or monuments, this project examines the role of digital spaces as a platform for young Colombians to engage in discourse related to collective memory. The central objective of this project is to investigate how collective memory in the digital space influences the role of young Colombians as political participants within the nation. In turn, this research highlights the significant role the digital space plays in shaping the journey of peace, transition, and reconciliation in communities deeply affected by violent conflict.

TOSIN OLADOKUN
Loyola Marymount University
From Followers to Future Leaders: How Black Women Micro-Influencers Are Reshaping Ethical Digital Marketing
Location: Pinnacle

This project explores how Black women micro-influencers are redefining the landscape of digital marketing through culturally specific storytelling, community-building, and brand engagement. While traditional influencer marketing has prioritized mass visibility and aspirational branding, micro-influencers—those with smaller but highly engaged audiences—are increasingly recognized for their authenticity and ethical appeal. This research examines how Black women creators, particularly within fashion and entertainment, use platforms like Instagram and TikTok not only to build personal brands but also to challenge dominant media narratives and represent marginalized cultural perspectives. Combining literature in media studies, influencer marketing, and Black feminist thought, the project uses content analysis to study the posts, captions, brand collaborations, and community interactions of three to five Black women micro-influencers. Rather than conducting interviews, the project analyzes their public digital presence as a form of visual and narrative branding. Findings from this research will inform a digital art piece that illustrates the branding strategies and cultural labor of these influencers, connecting academic insights with creative visual storytelling. Ultimately, this project contributes to broader discussions about ethical marketing, platformed representation, and the future of digital influence. It argues that Black women micro-influencers are not only content creators but also cultural strategists and digital entrepreneurs—offering a powerful model for inclusive and values-driven marketing in the social media age.

ARIANA MENDEZ
St. Edward's University
Does Foundation Shade Range Matter?
Location: Pinnacle

Foundation shade inclusivity has become an increasing concern in the beauty industry as consumers demand better representation across skin tones. Although some brands have expanded their shade ranges, it remains unclear whether this inclusivity is consistent. This study investigates whether consumers are offered equitable foundation shade options across varying price points and store types. Quantitative data were collected in Jersey City, New Jersey—one of the most diverse cities in the United States. A local Walmart represented the grocery/drugstore category, and a Macy's in a Jersey City mall represented the department/luxury segment. From each store, 35 product lines were randomly selected for analysis. Manufacturer's suggested retail price (MSRP) and shade range data were gathered from brand websites. To ensure consistency, shades were categorized using a custom classification system based on hue, saturation, value (HSV) codes. A logistic regression analysis examined the relationship between store type, MSRP, and shade range, identifying trends and disparities across retail tiers. Findings offer insight into whether the beauty industry's push for inclusivity is equitably reflected in retail environments, revealing potential gaps in access based on where and at what price consumers shop.

July 30, 2025 - 9:00 AM - Atmospheric and Environmental Science Breakout VI: Panel B

ANDREA JIMENEZ-HERRERA
Knox College
Perspectives of young adults communicating about climate change mitigation efforts within Hispanic households in the US
Location: Odyssey

Climate change mitigation is a global struggle. Communities worldwide face the repercussions of climate change, some of whom find themselves at a higher disadvantage than others. Historically, communities of color have been prone to exclusion and dismissal when discussing climate change and decision-making that impacts their lives. The Hispanic community in the United States makes up a significant portion of the population, but is underrepresented in policymaking and project funding. These communities face higher health risks, as well as property and opportunity loss due to the deteriorating state of the climate around the globe, but also struggle to engage with activism as a privileged action. Inspiring individuals to come together to support change is challenging, especially as young adults learn to work and evolve alongside older generations. This study focuses on the relationship dynamics encountered by young adults in navigating issues of climate change and sustainability with their family members across multiple generations. Using a mixed-methods approach, young Hispanic adults between the ages of 18-25 completed a survey asking about their family dynamics, their understanding and perceptions of climate change, as well as their attitudes and feelings on mitigation participation. This project is being conducted to better understand the knowledge and mitigation efforts of young Hispanic adults, and how they engage their families in those efforts with the goal to create more localized and authentic methods to engage with climate change mitigation efforts.

MAYA NÚÑEZ
St. Edward's University
Analyzing Land Management Impacts on Soil Carbon in Texas Grasslands
Location: Odyssey

Soil is the largest terrestrial stock of carbon, containing twice as much carbon as the atmosphere. Current land use degrades and threatens this critical carbon pool, and future climate change will only amplify these losses. Retaining and building soil carbon is therefore essential to a multi-pronged natural climate solution strategy. Sequestering carbon in the soils of crop and grazing lands—and preserving it in grasslands—are key pathways for land-based climate action. The relationship between grassland management and soil carbon sequestration remains unclear. While overgrazing consistently reduces soil carbon, it is less certain whether well-managed grazing reliably increases it. The effects of prescribed fire on soil carbon are similarly ambiguous. Because sequestration rates depend on rainfall, vegetation type, and soil texture, there is a need for regional data in the absence of globally consistent predictive models. This project aims to address that gap by analyzing how land management practices affect soil carbon across Texas grasslands. We collected soil samples from eight sites in Central and Eastern Texas that span a rainfall and latitudinal gradient. We will use random forest models to correlate soil carbon values with management history (plowing, fire, and grazing), vegetation vigor (NDVI), climate, recent rainfall, and soil moisture. We will present preliminary findings focused on climate and recent rainfall.

MIRACLE BOWMAN
Bowling Green State University
Power to the People: Examing access to renewable energy programs in low-income communities
Location: Odyssey

Environmental justice is a growing area of research that explores how environmental issues connect with racial and economic inequality. One key issue that has not been fully addressed is how accessible state-level renewable energy programs are in low-income neighborhoods. Although much work has been done on topics like clean energy and environmental equity, there is still a gap in understanding how these programs perform for the people they are meant to help. This project examines how accessible and effective state-level renewable energy programs are in low-income communities by conducting a comparative analysis of five states: California, Texas, Florida, Illinois, and New York. It focuses on key factors such as economic benefits, community involvement, affordability, long-term impact, environmental outcomes, and how well each program reaches low-income communities. The purpose of this research is to identify patterns, gaps, and successful strategies in program implementation. In doing so, the project will highlight how policy design and outreach methods affect which communities will benefit from clean energy programs and which remain underserved. By comparing a variety of program models across regions, this study provides insight into what equity looks like in practice. The findings may also inform how future programs can become more inclusive and impactful by reducing barriers such as cost, ownership requirements, and limited awareness. Ultimately, this research contributes to the broader conversation on environmental justice by helping to shape cleaner and fairer energy transitions nationwide.

STEPHONE RIVIERE
Rider University
The Impact of Overgrazing on Forest Understory
Location: Odyssey

In New Jersey, the explosive population growth of the white-tailed deer (Odocoileus virginianus) has led to several negative effects on the environment due to overgrazing, which decreases the forest understory and species evenness. We lack a strong understanding of the link between the presence of deer and plant species biodiversity, as it relates to species evenness (Ang et al., 2022). This study is to assess understory species diversity in the presence or absence of deer in the Loveless Nature Preserve, adjacent to Rider University. We employed a 5-year deer fence and observed a total area of 24 square meters of the understory, 12 square meters was in the fencing and 12 square meters was outside the fencing. We hypothesize that the species diversity will be greater in the deer fencing than outside the deer fencing, providing greater insight into the role of deer management in forest ecosystem health.

July 30, 2025 - 9:00 AM - Engineering Breakout VI: Panel C

GABRIEL MACIAS-VILLEGAS
University of Nebraska–Lincoln
Accessible and Accurate Q-Meter to Evaluate High Frequency Magnetics for the Next Generation of Power Converters
Location: Innovation

Industrial and commercial sectors continue to demand more power, requiring smaller and more efficient power converters. Wide-bandgap semiconductors like Gallium Nitride (GaN) Field Effect Transistors are capable of meeting higher rating benchmarks. However, an essential part of these converters, high-frequency magnetic materials, remains underdeveloped. This challenge is attributed to a fundamental lack of reliable data above 1 Mhz needed to characterize these materials adequately. A parameter used to characterize magnetic materials effectively, quality factor (Q), is the ratio of energy stored to energy lost. Although Q's importance is recognized, there is an insufficient amount of data to develop magnetics. Existing measurement devices like Q-meter and LCR meters are either outdated, difficult to access, expensive, manually operated, or limited in their measuring capabilities. To close this gap, we propose a low-cost, automated, accessible, and accurate measurement device to drive high-frequency magnetic material research. The proposed Q-meter automatically measures across 1Mhz - 20Mhz to adequately characterize the magnetic material within 20 percent tolerance. An overall cost-effective device below 500 dollars will be widely accessible. Our approach allows researchers at any level to contribute effectively, without finding paywalls or requiring training.

ISABELLA SOARES
University of Texas at Austin
Codesigning the Mechanical and Transport Properties of Ultrafiltration Membranes Utilizing Zwitterions and Block Copolymer Self-Assembly
Location: Innovation

Ultrafiltration membranes offer an energy-efficient, compact, and modular method to purify water, selectively separate pharmaceuticals and perform numerous separation processes. However, ultrafiltration membranes are often challenged with maintaining high permeability and selectivity, balancing good mechanical strength and transport properties, and resisting fouling, a phenomenon where debris accumulates onto membrane surfaces over time. Previously, block copolymer self-assembly has been used to achieve both high permeability and selectivity. Zwitterions, which are molecules containing positive and negative charges but have a net neutral charge, have been used to create a hydration layer on ultrafiltration membrane surfaces and introduce antifouling properties. This project aims to combine these strategies, namely zwitterions and block copolymer self-assembly, to create membranes with good mechanical strength, balanced transport properties, and fouling resistance. A zwitterion-containing block copolymer was synthesized using a two-step reversible addition fragmentation transfer polymerization that consisted of creating a zwitterionic, hydrophilic block of methyl methacrylate and 2-methacryloyloxyethyl phosphorylcholine and then adding on a mechanically robust styrene and acrylonitrile block via dispersion. Membranes were created from this polymer using non-solvent induced phase separation, a popular method for industrial membrane fabrication. Formulated batches of these zwitterionic block copolymers were analyzed, and the membranes' performance has proven promising in their ability to create favorable water purification membranes, with initial permeances of 584 LMH/bar. This presentation aims to present the synthesis and characterization of these zwitterionic block copolymers, their subsequent fabrication into ultrafiltration membranes, and preliminary transport and mechanical data. Future research directions and immediate next steps will conclude the talk.

MARCIAL ROMERO GOMEZ
University of Washington
CNN-Assisted Rapid Wave-Dynamics Extraction from Low-Contrast High-Speed Footage of Rotating Detonation Rocket Engines
Location: Innovation

Rotating detonation rocket engines (RDREs) sustain an ultra-fast (10–100 kHz) detonation wave that circles an annular combustor, offering attractive efficiency gains over conventional burners. However, diagnostics become especially problematic with hydrogen–oxygen test fires: weak chemiluminescence and poor wall reflections yield low-contrast, high-speed videos where the wavefront melts into the background. Classic edge-detection techniques often fail, so frequency and wavenumber can't be trusted. I'm addressing this gap by developing a lightweight convolutional neural network that pinpoints the combustor boundaries even in the dimmest footage so each frame can be unwrapped onto a one-dimensional annulus. I hand-curated 500 high-speed RDRE frames, annotating inner and outer combustor walls and training a pruned YOLOv4-Tiny detector in MATLAB; depth-wise-separable layers and custom anchors keep inference below 5 ms while preserving accuracy (AP@0.50 IoU = 0.88 for the outer wall, 0.52 for the inner, overall mAP = 0.70). The trained detector is inserted inline: each live frame is boxed, cropped, unwrapped to polar coordinates, and passed to existing brightness-trace/SVD routines that previously failed whenever low-contrast hydrogen-rich plumes obscured edges. Once masked, standard filtering and Fourier analysis recover wave speed and mode within minutes, turning raw pixels into reliable diagnostics between hot-fire runs. End-to-end testing shows the downstream wave-tracking algorithm now converges on the correct dominant mode in 97 % of frames versus 68 % with legacy edge detection. This approach also broadens the range of fuel-oxidizer mixtures that can be evaluated without resorting to computationally intensive CFD or other advanced simulations.

EDUARDO MORENO DE LA PAZ
Westminster University
Regenerative Energy on Airbus A320 Wings
Location: Innovation

Greenhouse gases are produced from automobiles, aircraft, mines, AC, fires, animals, and rotting food. These gases disrupt the global climate, destroying wildlife, the environment, and crops. The transportation sector alone contributes 29% of emissions in the U.S, with one third of that from aircraft alone. If commercial planes were electric, we could reduce the amount of transportation emissions from the U.S, a study shows an estimated 93% reduction in emissions when replacing a jet from a Cessna 460XL with an electric one. This effectively gives insight into what every plane could be like. The primary challenge with developing electric commercial airplanes is overcoming the battery to weight ratio required for functionality. Determined to create a way to reduce the weight to energy ratio for a commercial plane battery, I've designed 3 different regenerative generators for the Airbus A320 wing. The generators use induction motor, Newton's bladeless motor, and pneumatic motor. These generators convert wind that hits the plane midflight into electricity, recharging the battery, effectively reducing the need for a large battery. To test how effective these generators would be on a plane, I tested the weight difference, drag, and electrical efficiency of the wings with electric generators compared to a scaled down version of an unchanged A320 wing. These designs demonstrate some promising results for some of the designs and the possible future for electric planes.

July 30, 2025 - 9:00 AM - Math, Statistics, and Physics Breakout VI: Panel A

CARLO SANTOS
University of Nebraska–Lincoln
Modeling Gas-Phase Ultrafast Electron Diffraction
Location: Pathways

Gas-Phase Ultrafast Electron Diffraction (GUED) is a technique used for analyzing the molecular dynamics of molecules using electrons. The purpose of this research is to develop a computational model that consolidates all adjustable parameters in GUED to optimize the tracking of electrons in a program called General Particle Tracer (GPT). This involves creating a customizable input system within GPT based on a laboratory setup that includes variables such as electron beam size, intensity, duration, and all the parameters that the beam interacts with. The laboratory setup involves a photoemission source, acceleration gradients, lenses, and compression cavities. These components will be programmed into GPT with user-defined boundaries. The output of the GPT model will depict the beam spread, duration, and orientation as it travels through the apparatus. The results of the simulation will be directly compared to the laboratory setup of the GUED experiment. We will compare any discrepancies between the simulation and the experiment and continually optimize the code to fit the real-world results. This project will create an efficient diagnostic and verification tool to use when performing GUED experiments as described by Dr. Centurion's group.

ETHIOPIA KEBEDE
Augsburg University
Implementing a Convolutional Neural Network for Automated Identification of Magnetospheric EMIC Wave Events Observed by Magnetometers in Arctic Canada
Location: Pathways

A convolutional neural network (CNN) model was previously trained to identify electromagnetic ion cyclotron (EMIC) waves from spectrograms from Halley magnetometer station in Antarctica. The model was trained on three years of data spanning from 2015 to 2017. When tested, it identified all spectrograms manually labelled as having EMIC wave events. Antarctica is fairly far from human interventions so the data set is less noisy compared to stations at eastern Arctic Canada. Therefore, this research project aims to train the model on a relatively more noisy data set from Nain, Halley's magnetically conjugate station in the northern hemisphere. The training data set includes 2022 and 2023 spectrograms from Nain. If successful, less time will be spent on identifying and cataloguing EMIC waves from spectrograms and comparing the wave activity during solar maximum and minimum years.

JUSTIN MAINA
University of Wisconsin - Madison
Simulating Muon Ionization Cooling for Future Muon Colliders
Location: Pathways

Muons, charged particles that are heavier than the electron, can be useful for achieving tera-electron volt energy levels and for enabling more precise measurements of other fundamental particles. However, a significant obstacle in creating muon collisions is their microsecond lifetime, which is too short to allow quality collisions. Ionization cooling enables high-quality beam manipulation within the muon's short lifetime, allowing high-energy collisions. For my research, I will analyze how the designed ionization cooling system for a future muon collider will affect parameters such as emittance, momentum, and the position of muons moving through the cooling system by creating simulations through a software called G4Beamline. Research in muon colliders and accelerators can have applications such as muon tomography for non-invasive imaging and future possibilities in cancer treatment.

LIZBETH SANTILLAN JAUREGUI
University of California, Davis
NQR Study of Overdoped YBCO
Location: Pathways

YBCO (YBa2Cu3O7-x) are a class of high temperature superconductors, consisting of planes and chains of copper and oxygen atoms. To date, most research has focused on under- and optimally-doped YBCO, demonstrating properties such as higher critical temperatures and interesting electron/superconducting behaviors. Our focus is to study an overdoped YBCO. Doping is achieved by synthesizing crystals in a well-controlled oxygen environment, which changes the overall electronic structure of the material. These changes affect the superconducting properties, such as critical temperatures and relaxation rates. Conventional wisdom suggests that with sufficiently high doping, the superconducting transition temperature will decrease and eventually reach zero. However, preliminary experiments have suggested otherwise. To further understand these properties and determine whether this behavior is a common occurrence in overdoped YBCO, we use nuclear quadrupole resonance (NQR) to investigate the local charge environment of the different Cu sites through the electron field gradient (EFG). We measure the spectra, which gives direct information about the doping, and the spin-lattice relaxation and decoherence rates. From this sample we can compare the critical temperature and relaxation rates to the lower and optimally doped cuprates.

July 30, 2025 - 9:00 AM - Psychology and Cognitive Science Breakout VI: Panel I

ANGELICA ZAGAR
Truman State University
ADHD, OCD, and ASD assessment scores as predictors of perceived potential therapy effectiveness and outcome expectancies in college students
Location: Discovery

Young adults face numerous barriers to mental health treatment, with additional challenges for those with disabilities. Individuals with autism spectrum disorder (ASD), attention-deficit hyperactivity disorder (ADHD), and obsessive-compulsive disorder (OCD) experience unique cognitive processes and comorbidities that influence well-being. Access to effective treatment is essential for reducing distress and preventing further complications. While research supports the efficacy of various psychotherapies, little is known about how neurodivergent traits shape the perceived potential effectiveness of treatment. An understudied barrier to seeking treatment is the anticipation of poor therapy outcomes, which reduces the likelihood of pursuing care. This study examines the potential perceived effectiveness of six different psychotherapy types (cognitive behavioral therapy, dialectical behavior therapy, psychodynamic therapy, interpersonal therapy, mindfulness-based cognitive therapy, and acceptance and commitment therapy) by describing hypothetical scenarios utilizing unique techniques of each. Respondents (N = 87) were drawn from a college sample. Scores from the Adult ADHD Self-Report Scale (ASRSv1.1; Kessler et al., 2005), Autism Spectrum Quotient (ASQ-28; Hoekstra et al., 2010), and Obsessive-Compulsive Inventory-Revised (OCI-R; Foa et al., 2002) were collected and correlated with participants' reported expectations of therapy outcomes. Findings will explore whether neurodivergent individuals are more or less likely to perceive different types of therapy as likely to result in positive outcomes.

CORBAN BALLEK
Rider University
Efficacy of Metacognitive Training in Obsessive-Compulsive Disorder: A Meta-Analytic Review
Location: Discovery

Exposure and response prevention (ERP) has long been considered the gold standard first-line treatment for obsessive-compulsive disorder (OCD). Access to ERP, however, can be challenging at times due to the specialized training required in order to administer the treatment (Senter et al., 2021). It is for this reason that alternative treatment options have been developed and considered to address the growing concerns of limited access and treatment resistance to ERP and pharmacological methods. Metacognitive training/therapy (MCT) has seen a large increase in popularity due to these concerns and presents the opportunity to meet the need for increased access to OCD treatment, due to the intervention not requiring such specialized training. The current literature lacks a large systematic overview of the effectiveness of MCT and its plausibility as a first-line treatment (Moritz et al., 2019; Atmaca, 2022). The aim of this meta-analysis is to assess the efficacy of MCT and its comparison to ERP by methodologically selecting studies that administered MCT and/or ERP and evaluated treatment outcomes utilizing scales such as the Yale-Brown Obsessive Compulsive Scale (Y-BOCS), Obsessive-Compulsive Inventory-Revised (OCI-R), and the Beck Depression Inventory (BDI). We hypothesize that MCT will reduce obsessive and compulsive symptoms and aid in addressing the treatment gap for OCD.

TASIA BROWN-DAVIS
The Chicago Professional School of Psychology (TCSPP)
Autism and Social Cognition: Exploring the Interplay of Perception, Emotion, and Interaction Abstract
Location: Discovery

Autism Spectrum Disorder (ASD) involves diverse challenges in social communication, with social cognition—understanding and responding to social cues—providing a valuable lens for examining these differences (Cervone, 2023). Social-cognitive theory suggests that behaviors in ASD arise from interactions between cognitive processes and environmental conditions. Neurocognitive traits such as difficulties with theory of mind, joint attention, and emotional regulation influence perceptual tendencies like sensory sensitivity and focused interests (Leekam, 2016; Ostrolenk et al., 2025). For instance, some autistic children engage deeply with stimuli like letters or numbers to self-regulate in sensory-rich environments, highlighting the link between perception and cognition (Ostrolenk et al., 2025). Emotional processing in ASD often diverges from neurotypical patterns, with autistic individuals focusing on fixed facial or vocal features rather than broader social cues (Livingston & Happé, 2021). These perceptual styles challenge deficit-based views and support neurodiversity-affirming models. Interventions grounded in social-cognitive theory—such as peer-supported play in inclusive settings (Gladh et al., 2025) and caregiver-led strategies to reinforce functional behaviors (Kamenski et al., 2025)—leverage autistic strengths. Role-playing and video-based instruction also help adolescents develop emotional understanding and perspective-taking (Tseng et al., 2020). Given the spectrum's diversity, individualized approaches are essential. Sociocultural factors like inclusive education and family dynamics shape developmental outcomes. Longitudinal research is vital to evaluate these interventions and reframe neurocognitive differences as adaptive assets (Cervone, 2023; Ostrolenk et al., 2025).

VINCENT HARRIS
Truman State University
Analyzing the Interaction Between Social Camouflaging and Attainment of Group Status: A Proposed Study
Location: Discovery

Research around autism has rapidly advanced in recent years, including on autistic individuals' engagement with camouflaging behaviors. These behaviors are understood to allow an autistic person to mask their typical behavior to better blend into a social environment. This study examines the possibility that engaging in camouflaging enhances individuals' social status among their groups via enhancement of social interactions. This study also examines autistic and non-autistic individuals' scores on camouflaging and subjective social status. To achieve this, we will first provide an overview of social camouflaging, then explain social status and how it is achieved, and finally, explore the potential connections between the two. The goal of this proposal is to uncover the relationship between social camouflaging frequency and an individual's self-perception of the status they hold within their social groups.

July 30, 2025 - 10:15 AM - Anthropology, Gender, and Ethnic Studies Breakout VII: Panel C

ISABELLA ESCOBAR-AVILES
University of Wisconsin - Madison
More Than Just a Character: Exploring How Positive Media Representation Relates to Identity and Cross-Racial Social Relationships
Location: Pinnacle

Entertainment media, including television and film, are consumed by a wide variety of audiences. They are often implicitly influenced by the cultural and historical values of a society. However, not only have the rates of non-White characters' appearances and speaking roles been lower than those of their White counterparts, their characterizations are also more often negative and rooted in stereotypes, as seen in US media analyses. Many previous studies have sought to find the implications of negative depictions on both the represented groups and the racial and ethnic-outgroups, with the possible impacts of positive media depictions not very well studied. In this study, we explore the implications of positive portrayals of various ethnic and non-White racial groups, as seen in popular mainstream media. Through a survey approach, we gather input on non-White participants' engagement levels of several television shows and films that center characters of various racial and ethnic groups, including their own. Participant data collected additionally highlights their opinions of themselves and their respective racial groups, with a focus on perceived perceptions of their social relationships and interactions with other-race people. We aim to find correlations between consumption of their respective groups' positive mainstream media and factors such as view of their identity affiliation and a strengthened view of the self. This can be used to not only guide media regulations, but inform creators on making more inclusive and positive media for underrepresented groups.

SPACY LU'NAS
Bowling Green State University
Switching gears: Diversity and Inclusion in Caldecott Medal winning picture books, 2020-2025
Location: Pinnacle

This research analyzes the representation of diversity and inclusion in Caldecott Medal-winning picture books from 2020 to 2025. Through a content-focused approach, this study examines how recent winners portray racial, cultural, and gender identities, both visually and narratively, building upon previous research such as Crisp and Hiller's gender analysis of earlier Caldecott winners, Painter's framework for multimodal picture book analysis, and Koss et al.'s mapping of historical diversity trends. The evolution of representation from tokenism to more genuine, intersectional depictions is examined in this analysis. To determine how well the selected works reflect broader trends toward inclusion in children's literature, they are analyzed in terms of narrative content, protagonist identity, and artistic and stylistic choices. Results point to a noticeable shift toward meaningful multiculturalism, affirming an ongoing redefinition of whose stories are centered and how they are told. This analysis emphasizes the importance of inclusive picture books in shaping children's understanding of identity and belonging, particularly for readers from historically marginalized communities.

VICTORIA HUGULEY
Eastern Michigan University
Southern Black and Queer: An Historical Exploration of Sapphic Relationships in Alice Walker's The Color Purple
Location: Pinnacle

Black women's sexuality has rarely been in their control. Racism and misogyny (misogynoir) have resulted in Black female sexuality being shaped by the "white supremacist capitalist patriarchal structure" in the way that the feminist scholar, bell hooks, defined it. The narrative of Alice Walker's 1982 novel, The Color Purple, focuses on the numerous plights Black women endured in the early 20th century. More importantly, a clear discussion is had about Black female sexuality by utilizing the evolution of the protagonist, Celie. Tracking Celie's sexual evolution and identity allows a historical analysis of her and Shug Avery's relationship and sapphic identities. Reading the novel in a historical context will illuminate how Walker showcases an often unspoken part of Black and Queer history and elucidates some of the ways that same-sex desire intersected with other forms of Black women's oppression at the time.

BRIAN BURKHARDT
Truman State University
The Complexities of Online Gay Dating Culture: Reasons for Burnout in LGBTQ+ Dating
Location: Pinnacle

The aim of this study is to understand challenges in gay online dating culture and levels of satisfaction that have been leading to burnout in some queer individuals. Specifically, this study seeks to better understand and find out challenges that LGBTQ+ people have faced and continue to face when using online dating apps. Methods engaged for this study utilize both in-depth interviews and demographic surveys. The study will specifically look at attachment theory and queer theory and how they relate to dating app satisfaction. The expected preliminary results will be that online dating for LGBTQ+ people will be impacted by attachment style (anxious, secure, or avoidant) and will reveal dating app user trends such as minimal responses, delay in response time, and lack of clear intentions to be more challenging for some than others. Additionally, this study investigates how attachment style influences people's expectations surrounding gay hook-up culture and the use of dating apps. It also looks at how both online app user trends and gay hook up culture influence dating burnout for LGBTQ+ people. The overall impact and significance are that despite challenges faced by queer people when it comes to online dating, the identified trends will help us find ways to make gay dating more fulfilling and less complicated.

July 30, 2025 - 10:15 AM - Atmospheric and Environmental Science Breakout VII: Panel C

JIAXIANG E
University of California, Los Angeles
Coastal Phytoplankton Distributions And Environmental Conditions Adjacent To A Large Metropolitan Area, Santa Monica Bay, CA
Location: Odyssey

Coastal phytoplankton are important contributors to primary productivity due to high growth rates in nutrient-rich waters. Phytoplankton abundance and community composition may be the result of anthropogenic forces, including wastewater and runoff inputs. In fact, anthropogenic forces are likely leading to increased harmful algae bloom (HAB) frequency, comprising dinoflagellates (about 75% of HAB taxa) and diatoms that grow to high abundances and can produce toxins that affect birds, mammals, and humans. The Santa Monica Bay provides a unique geography, climate, and ecosystem for our study as it receives significant wastewater and runoff from nearby watersheds, with its first records of massive red tides attributed to dinoflagellates beginning in the 20th century. However, phytoplankton abundance and distributions along the coastline are often concentrated, with gaps in understanding their community composition. Samples were taken on UCLA's research Zodiac from March through July of 2023, and phytoplankton taxonomic groups were quantified microscopically to determine phytoplankton abundance and distribution in Santa Monica Bay during one annual cycle. Data are analyzed to evaluate onshore and offshore distribution and correlations with physical and chemical environmental factors. This project aims to identify and evaluate conditions that lead to harmful and non-harmful algal bloom events to protect local biota and beach-goers dependent on the Southern California coastal ocean waters.

MAYLIN REYES
University of California, Riverside
Survey for novel race pathotypes of the Fusarium wilt pathogen threatening lettuce production in Yuma County, Arizona
Location: Odyssey

Lettuce is a valuable agricultural product, which totals $4.6 billion in Arizona and California, and is an important component of a healthy diet. Lettuce is susceptible to Fusarium wilt disease, caused by the soilborne pathogen Fusarium oxysporum f. sp. lactucae (FOL), which renders plants unmarketable. The most effective tactic to manage Fusarium wilt is use of resistant lettuce cultivars that prevent or limit disease development. In 2021, however, researchers identified a new race of FOL in coastal California with the ability to overcome resistance in some cultivars. Recently, lettuce growers in Arizona have anecdotally observed unusual behavior of Fusarium wilt in several fields, but Arizona lettuce fields have not been surveyed for the new FOL race. The objectives of this study are to determine the race of 50 FOL samples collected from 2020 to 2024. FOL samples will be tested against two lettuce cultivars that have opposing resistant or susceptible reactions to the endemic and new races. Lettuce seedlings will be root-dipped in a spore suspension of each FOL sample for 10 minutes , grown in the greenhouse for 4 weeks, and assessed for Fusarium wilt severity.. Samples will also be characterized in PCR assays that specifically detect two of the four known FOL races. The expected results of this study are to understand the geographical distribution of FOL races. The geographic distribution of FOL races is critical knowledge that will allow growers to select cultivars that are resistant to FOL races in their region.

MIAH ROBINSON
Fayetteville State University
Evaluating Bacterial Characteristics in Response to Environmental Nutrient Changes
Location: Odyssey

Human-driven nutrient enrichment alters microbial communities in wetland soils, with significant ecological consequences. In these ecosystems, soil bacteria play essential roles in nutrient cycling, promoting plant growth, and maintaining ecological balance. However, long-term disturbances from agriculture and industrialization have increased nitrogen and phosphorus inputs into natural systems. These nutrient surpluses can shift microbial competitive dynamics, favoring traits that promote rapid growth and resource acquisition, often at the expense of microbial diversity and ecosystem stability. This study investigates the effects of sustained nutrient enrichment on phenotypic traits in Bacillus species. Isolates were collected from an ecological research site in eastern North Carolina that received consistent fertilization treatments for over 20 years, along with control plots that remained unfertilized. To assess how nutrient availability influences microbial competitive strategies, we measured key phenotypic traits associated with environmental fitness: growth rate, antibiotic resistance, biofilm formation, capsule production, and sporulation. These traits were quantified using standardized microbiological assays, including spectrophotometric growth curves, disc diffusion tests for antibiotic sensitivity, crystal violet staining for biofilms, and differential staining for capsules and endospores. All three Bacillus isolates were Gram-positive, motile, and resistant to penicillin. Among them, WRC 289 showed the highest antibiotic resistance and confirmed biofilm formation. A potential trend suggests isolates from fertilized plots may exhibit fewer antibiotic resistances. Additional research is needed to determine how fertilization affects sporulation and capsule production. These findings highlight the potential for long-term nutrient inputs to reshape microbial traits and community structure, ultimately influencing soil health, plant-microbe interactions, and ecosystem resilience.

KAYLIANNE JORDAN
University of California, Davis
Screening Grapevine Rootstocks for Boron Toxicity Tolerance
Location: Odyssey

Boron toxicity is an important abiotic stress that limits grapevine productivity, particularly in arid and alkaline regions where boron can accumulate in soils due to irrigation practices. Rootstocks, the root systems onto which fruiting scions are grafted, are known to influence nutrient uptake and stress responses, yet their role in mitigating boron toxicity remains underexplored. This study aims to investigate the physiological and morphological responses of diverse grapevine rootstocks under boron stress. Selected rootstocks will be grown in a controlled

July 30, 2025 - 10:15 AM - Biology Breakout VII: Panel C

ISABELLA IKOBE
University of Minnesota - Twin Cities
Investigating the Impact of Substrate Utilization Diversity in the Methylobacterium genus on Corn Growth
Location: Innovation

The aerial surface of plants, known as the phyllosphere, covers an area of approximately one billion square kilometers on Earth and is the primary habitat for a multitude of microbes. A key reason is because plants release nutritional compounds that microbes need to survive, and in return, many plant-associated microbes enhance plant health. One prominent genus in the phyllosphere, Methylobacterium, can consume the one-carbon compounds plants release as a sole source of energy. These bacteria and plants have been previously shown to have a growth-promoting mutualistic relationship with each other. Methylobacterium in particular have the ability to secrete plant growth promoting hormones and provide protection against harmful pathogens, enforcing this dynamic. Though this relationship has been highly researched, it has been derived from a select few Methylobacterium species. Additionally, minimal research has examined how species-level differences in the ability to consume different metabolic substrates (known as substrate utilization diversity) can affect microbial colonization and plant growth. Therefore, this study aimed to determine how substrate utilization diversity within the Methylobacterium genus affects the growth of Zea mays (corn) by inoculating seeds with Methylobacterium species of natural corn bacterial isolates with differing substrate utilization profiles and monitoring their growth through measurements such as germination rate. Samples were also taken for 16S sequencing to assess how each strain competed with one another, thus analyzing the community dynamics of these strains. The information gained gives insight on the utilization of microbes to generate healthier crops.

MAHAMED YUSUF
Augsburg University
Synthesis of limonene Derivatives
Location: Innovation

Volatile organic compounds (VOCs) are a large group of carbon-based species that evaporate easily at room temperature. Once they are emitted into the air, they can form secondary organic aerosols through complex reactions. The monoterpene limonene is a VOC commonly emitted from citrus plants. This study examines the synthesis of various limonene derivatives. Oxidized derivatives of limonene were synthesized by hydrolysis of epoxides and oxidative cleavage. The products were characterized with GC/MS, NMR, and IR. Derivatizing VOCs such as styrene and alpha-pinene is also planned. The oxidized derivative's ability to make secondary organic aerosol will be compared to ascertain the effect of oxidation level.

TASHA MILLER
University of Wisconsin - Madison
Using soil-derived bacteria for biocontrol of Globisporangium ultimum infection on soybeans
Location: Innovation

Globisporangium (formerly Pythium) is one of the major plant pathogens causing crop loss all over the globe. It's an oomycete (fungal-like) pathogen with a wide range of hosts, including soy, corn, wheat, and potatoes, and it easily overwinters in the soil. It infects small seedlings, causing the diseases known as "damping off" and root rot. My project is working to determine whether Tiny Earth bacterial strains with antibacterial activity can also act as a biocontrol agent against this pathogen. Previous research identified 19 bacterial isolates that were antagonistic to Globisporangium ultimum in vitro, so the next step is exploring which ones also show activity in live plant trials using soybeans (Glycine max). Over the Spring 2025 semester, assays were completed in pots containing sterilized soil, surface-sterilized and germinated soybeans, G. ultimum inoculum, and liquid cultures of bacterial isolates. Pots were placed in a self-contained growth chamber and over 2-3 weeks each plant was rated for emergence (rising above the surface of the soil) and thriving (growing "true leaves"). Due to the high number of variables and logistical restrictions, my project has switched to using hydroponic pouches, where roots can be directly observed and the disease severity ranked. Once we identify the isolates with the most promise, we will do chemical and genetic analysis to determine the mechanism(s) of antagonism.

TRINITY GRIFFUS
University of New Mexico
Enhancing Sunflower Growth in Extraterrestrial Regolith through the use of Mycorrhizae Fungi and Supplemental Nutrients
Location: Innovation

In situ resource utilization will be essential for self-sufficiency for astronauts in future space missions on other planets. One of the most abundant materials available is regolith, the loose rock and dust covering planetary surfaces. This research investigates how we can improve the conditions of the regolith to be better suited for growing plants. The overarching research question for this project is will the fungi (Rhizophagus irregularis) assist in plant resource acquisition, water stress reduction, and improved growth for the sunflowers (Helianthus annuus) grown in the regolith? The research questions that were answered during this experiment were as follows. How does the overall growth of sunflowers change based on which substrate and treatment the plant receives? Do the plants with the fungi treatment grow more successfully compared to without? Factors such as temperature and light are maintained at fixed levels in a plant growth tent. Using measurements to monitor growth rates and plant physiology, progress can be tracked for each plant within the different regolith with two treatment types (plants with fungi and plants without fungi). Preliminary results show that fungi assisted differently in each regolith. The fungi improved root development in the Martian regolith and improved growth height in the Lunar regolith. Current results from the plants grown in only Lunar regolith simulant indicated that when the sunflowers were inoculated with the fungi, they showed improved growth and photosynthetic rates. Further measurements are needed to understand the fungi's impact fully. Mycorrhizae could improve plant resource acquisition and reduce water stress, benefiting extraterrestrial agriculture and boosting food productivity in drought-affected regions.

July 30, 2025 - 10:15 AM - History Breakout VII: Panel B

B. QAVVIK CROYLE JOHNSON
University of Minnesota - Morris
Circling Back: Haunted Institutions and Indigenous Cyclical Time
Location: Pathways

Hauntology, originally derived from the work of French scholar Derrida, derives much of its intellectual stock from European academic traditions, including an attachment to linearity and progression in which hauntings are marked by a kind of faded distance from the present, the 'real'. To engage with the potent ideas of the ghostly and the haunting with an eye to developing Indigenous academic frameworks which engage our worldviews as primary, a reframing of ghosts is necessary. In order to provide a material heuristic in shifting the imagined otherness of the past and its ghosts, I have taken the University of Minnesota, Morris, and its history as an agricultural school and Native American boarding school, as an example of a cyclical haunting, one in which no distance or healing can occur without the understanding that what is present and past are coexistent. By engaging in the public discourse and publicity materials from each of these stages in the University's history, I have demonstrated not only the sometimes subtle differences between these distinctive institutions, but also their overwhelming sameness in their position within the cycle of colonial violence. This provides a foundation for further interrogation of colonial conceptions within the framework of hauntology, and for the beginnings of a development of a new hauntological practice which engages seriously with the materiality and realness of its subject matter.

CITLALY GUZMÁN DE LA ROSA
Westminster University
Claiming Indigeneity, Inheriting Mestizaje: Historical Legacies, Identities, and the Ethics of Belonging
Location: Pathways

The legacies of mestizaje and Indigenismo have left some people of Mexican descent with complex ideas of identity that can simultaneously romanticize and erase Indigenous peoples. Many use cultural expressions, spiritual practices, or DNA testing to "reclaim Indigenous roots", though often without community accountability, questioning, or awareness of critiques of appropriation. These claims, increasingly visible in digital spaces and literature, are rooted in settler colonialism and ideologies of racial mixture. This study addresses this phenomenon and asks: How can people of Mexican descent understand their distant connections to Indigeneity in a historically informed and ethically responsible way? This is a humanities field study that uses the interdisciplinary frameworks of decolonial and critical Indigenous studies to draw from scholars like Lourdes Alberto, Carolina Bloem, James Courage Singer, and others to examine potential challenges or perpetuation of colonial projects like mestizaje and Indigenismo. Through Reception Theory, I observe foundational texts to analyze how ideas of racial mixture and national identity influence present-day understandings of Indigeneity. I also use a deductive approach to Directed Content Analysis to analyze social media, guided through codes (categories) within my framework that look for patterns/themes of "Indigenous aesthetics", Nahuatl, or Danza Azteca, and more. Ultimately, I argue that claiming Indigeneity as Chicanxs and US-born Mexicans can, unintentionally, contribute to the neglect of Indigenous struggles and experiences. The intent isn't to dismiss previous work within conversation, but rather to include more perspectives and explore what it means to inherit this complex and colonial history.

LESLIE FIGUEROA-BORJA
University of California, Davis
Raíces Inundadas: The Historical and Collective Memory of Areneros, a former community in Chalatenango, El Salvador
Location: Pathways

The memories of the displaced are often unpreserved. In 1972, when the government of El Salvador announced plans to build the Cerrón Grande Dam and Reservoir, one of the country's largest infrastructure projects, it celebrated the dam as bringing development and improvement to the quality of life for the municipality of Chalatenango; however the subsequent flooding of communities would occur. My family's ancestral community, Areneros, was among the 13,500 hectares of land flooded, with nearly 13,000 people displaced.

MARCO ESCOBAR
University of California, Los Angeles
Deconstructing the Socially Constructed: An Intellectual History of the Racial Ideologies Behind Mestizaje and the Making of Mexicanismo Through the Works of José Vasconcelos and Manuel Gamio
Location: Pathways

The early twentieth century ushered in an era of revolution in Mexico; yet, this postrevolutionary nation quickly sought to modernize itself into a global power. Mexican nationalism emerged as a mechanism of survival in response to American imperialism, driven by competing ideologies over who belonged to Mexico's collective identity and how it should be constructed. My research suggests that cultural and political movements during this period reflected an idealized vision held by intellectuals who sought to define the nation through selective notions of belonging and racial unity. I assert that the nationalized and racialized project of propagating mestizaje (racial hybridity) functioned not only as a tool of cultural control but also as an attempt to unify Mexico's vast diversity into a single identity. My study emphasizes, through an intellectual history of texts by José Vasconcelos and Manuel Gamio, that the project of mestizaje aimed to erase Indigenous and African ancestries to construct a collective identity centered on racial hybridity as the necessary foundation for their vision of postrevolutionary Mexico. Furthermore, my research aims to answer why both intellectuals viewed diversity as a threat to mestizo/a mobility in the immediate years after the Mexican Revolution. I approach this project through a qualitative historical analysis grounded in decolonial and racial formation theories, drawing primarily from primary texts by Vasconcelos and Gamio to examine why these two leading thinkers of elite Mexican society positioned mestizaje as central to national development while framing Indigenous and African identities as obstacles to modernization.

July 30, 2025 - 10:15 AM - Poster Session 4: Biology

MEIGAN FEEKES
Southern Oregon University
The effects of serotonin on the bbs-5 gene in Caenorhabditis elegans
Location: Centennial

Ciliopathies are a genetic disorder caused by defects in the structure and function of cilia. Cilia are hair-like structures that are found on the surface of almost all cells of a human and are important for the physiological processes. There are multiple genes associated with ciliopathies, including the bbs-5 gene. When this gene is mutated, it causes Bardet-Biedl Syndrome (BBS), a unique type of ciliopathy. This can be seen as retinal degeneration, cleft lip/palate, hepatic cysts, etc. There is still little known about how these phenotypes arise in individuals with BBS. The purpose of this research is to use Caenorhabditis elegans as a model organism to study BBS C. elegans with mutations in bbs-5 retain eggs instead of releasing them, but it is currently unknown why this occurs. Serotonin is a neurotransmitter in many organisms that plays a role in modulating behaviors, like the keeping and releasing of eggs. This experiment aims to identify the relationship between the bbs-5 gene and serotonin production and levels. To do this, we will use immunofluorescence to observe serotonin levels directly in bbs-5 mutant animals. We expect to see that bbs-5 mutant animals possess less serotonin than wild-type animals, leading to retention of eggs. This research will allow us to know more about the connection between serotonin and its effects on ciliopathy.

MEHEWARE ABIY
St. Olaf College
Protective mechanisms of Tetrahymena thermophila in microplastic-rich environments: Implications for eukaryotic responses to environmental microplastics
Location: Centennial

As microplastics continuously enter different water sources organisms have a hard time avoiding them and need strategies to protect themselves from their harmful effects. The main cellular-level concern of microplastics are their damaging effects on chromosomes and subsequent decreased cellular viability. Most organisms first react to microplastics by activating oxidative stress and antioxidant genes that are responsible for DNA repair and protection. The model organism Tetrahymena, a unicellular eukaryote, is a good model for studying cellular effects of microplastics because many of their genes are similar to those that are found in other eukaryotes like humans. Experimental methods included exposing cells to varying exposure times of polystyrene microplastic powder and assessing not only visual cellular changes and cell viability, but also the expression of ten genes hypothesized to be connected with stress responses. Five of these candidate genes are associated with oxidative stress responses, while the other five code for antioxidant proteins. Preliminary results suggest that Tetrahymena use antioxidant genes more than oxidative stress genes in response to microplastics. Applications of this research include hypothesizing ways that other organisms can protect themselves from microplastics, or identifying possible therapeutic enzymes that upkeep the protection of DNA for medical application.

SAMANTHA RIVERA
The College of St. Scholastica
Molecular and Phenotypic Characterization of Mycobacterium Phage Severus
Location: Centennial

Bacteriophages (phages) are viruses that infect bacteria. Phages are found anywhere bacteria can be found therefore they likely play important roles in diverse environments, including human health, biotechnology, and agriculture. Despite the vast number of phages, we know relatively little about them. In an effort to better understand phage genome organization and gene function, we are currently building a plasmid-based overexpression library of a complete set of genes for Mycobacteriophage Severus. Severus, a temperate cluster A10 siphovirus isolated on M. smegmatis mc2 155 (PhagesDB), encodes 80 genes. Fifty six percent of which have no known function. Each gene will be amplified using polymerase chain reaction and then cloned into the pExTra expression vector through isothermal assembly. To date, of the 80 Severus genes, twenty-eight have been successfully cloned into the expression vector. As we continue to build the complete genome overexpression library, we are working to characterize the function of each gene through phenotypic assays. Cytotoxicity assay will be used to identify phage genes that slow or inhibit hosts cell growth. We will also test whether expression of each severus gene functions to protect the bacterial host from infection by phages using a defense assay. We will present the design of our library construction and results of the phenotypic assays. This project is part of an ongoing collaboration with Howard Hughes Medical Institute through the Science Education Alliance’s Gene-function Elucidation by a Network of Emerging Scientist (SEA-GENES) program (SEA-PHAGES).

July 30, 2025 - 10:15 AM - Poster Session 4: Chemistry and Biochemistry

JOSUE DURAN
Boise State University
Turning Waste into Worth: Extracting Starch and Protein from Low-Quality Potatoes
Location: Centennial

We are partnering with Genesis Organics (GO) and Idaho Potato Products (IPP) to convert low-value potatoes into starch and protein for use in consumer products. Our project aims to find optimal extraction and pretreatment methods to maximize the yield and purity of protein and starch compounds from Ez chip, Russet, and Gogu Valley potatoes. Preliminary data showed that using the SiccaDania method (gentle fractioning with water for efficient processing) for starch-focused trials resulted in starch yields of 12%, 11.9%, 3.5% for EZ Chip, Russet, and Gogu Valley potatoes, respectively. Ammonium sulfate precipitation used to extract proteins following the methods of Waglay et al. gave protein yields of Ez Chip (1.02%), Gogu (1.00%), then Russet (0.7%). Applying a pulsed electric field before extraction potentially leads to an increase in starch yield by 4% and purity of starch by 8%. Additionally, the use of an antifoaming agent from IPP increases fluid recovery after cheesecloth filtration and the yield of starchy solids. This research will determine a favorable combination of pretreatment and isolation methods to maximize starch and protein extraction. This will create new enterprises and high-paying economic jobs as it opens up the door for potato upcycling and potentially other related food groups. Future research will deal with adding Dimethyl Ether and Hydrothermal Liquefaction, as well as Ion Exchange and Size Exclusion Chromatography extraction, into our pretreatment combinations.

KRIS XIONG
St. Olaf College
The protein-protein interactions of SPY
Location: Centennial

Protein modifications are crucial to how proteins work, allowing for more diversity in the functioning of proteins. SPINDLY (SPY) is a novel plant protein that catalyzes the transfer of O-fucose from GDP-fucose to other proteins, modifying them. It is part of the protein O-fucosyltransferase (POFUT) family, but is unique in that it is the first nucleocytoplasmic-localized POFUT discovered and contains a tetratricopeptide repeat (TPR) domain that is critical for protein-protein interactions and substrate selection. SPY plays a crucial role in regulating plant growth by interacting with DELLA proteins, which suppress the phytohormone gibberellin that promotes plant growth. Furthermore, SPY has also been shown to affect a plant's response to stresses in its environment, such as diseases and droughts. By learning more about SPY and how it chooses which proteins to modify, we could create crops that are more resilient to its environment. However, the mechanism by which SPY interacts with other proteins and how these interactions drive substrate selection remains largely unknown. We hypothesize that the full-length TPR domain, containing 11 repeats, is critical for proper protein glycosylation and substrate selection through critical protein-protein interactions. We created an E. coli specific plasmid that can produce full-length SPY from Arabidopsis thaliana and aim to determine how this complete TPR domain affects individual and global O-fucosylation compared to our model construct that only contains three TPR repeats. Through this study we hope to gain a deeper understanding of the substrate scope of SPY and how the TPR domain controls SPY's function.

July 30, 2025 - 10:15 AM - Poster Session 4: Engineering

SHOKRIA MUHANDIS
The College of St. Scholastica
Artificial Intelligence: Cervical Cancer Cell Classification Using Convolutional Neural Networks (CNNs)
Location: Centennial

Cervical cancer is a major health concern for women around the world, especially in countries where there is limited access to regular Pap smear screenings. A Pap smear test can help detect cervical cancer early. However, analyzing the images manually is slow and labor intensive. Convolutional Neural Networks (CNNs) show promise in classifying Pap smear test images quicker and more accurately. CNNs are a unique type of artificial intelligence that excel at recognizing patterns, shapes, and features in pictures. However, this model needs a significant amount of data to work well. One major challenge in training these models is this data imbalance; there are many more images of healthy cells than unhealthy. This imbalance creates a problem because the model can become biased towards predicting healthy cells. To improve the fairness and accuracy of CNN-based models, we explored different ways to manage the data imbalance using published datasets of healthy and unhealthy human cells. Three methods were tested: 1) creating more images of cancer cells through image augmentation to increase the number of class images; 2) designing random oversampling and undersampling to balance the dataset to add more samples to minority classes or reducing samples from majority classes; and, 3) utilizing Class Weight to increase the loss penalty for underrepresented classes.

JUAN OJEDA GARCIA
University of Wisconsin - Whitewater
Effects of Artificial Intelligence in finance
Location: Centennial

Artificial Intelligence is revolutionizing the financial field, such as how we manage money, measure risk, and make decisions. For many years, financial institutions always relied on traditional models and human intuition to make the best decisions. While these methods were effective, they were not as convenient as AI in recent years since you can make financial decisions by simply typing a sentence and clicking a button. This research project will use the quantitative and qualitative analysis methods, looking at different programs being created and how they can be used for making profit trading in real time. These programs also have the advantage of optimizing your portfolio, measuring risk, detecting fraud and so many more applications. The anticipated findings for this research project will include real life examples of AI in trading, as well as firms and individuals using it to enhance efficiency and highlight the bigger platforms of the study. Another aim for this study is to show the challenges regarding transparency and examples of data bias and ethical concerns. The purpose of this research is to understand both the potential and the limitations of AI, specifically in finance while emphasizing the importance of responsible use to make sure there is sustainability in financial markets with this new technology.

July 30, 2025 - 10:15 AM - Poster Session 4: Math, Statistics, and Physics

JAZMINE GURROLA
Azusa Pacific University
Children with disabilities face unique challenges
Location: Centennial

This study aims to explore the challenges that children with disabilities may face, such as discrimination, parental factors, and social interaction. Using information from the 2022 National Children's Health Survey, my group and I cleaned and analyzed data, creating graphs to help visualize the daily challenges faced by these children. All data used in this research project consists of data from children ages 0-17 years old who fall into one of these categories: ADD/ADHD, Autism/Asperger's Syndrome and Mental, Emotional or Developmental Disabilities. We began our research by looking at the children's data from a surface-level perspective, such as looking at the way that they interact with food. We then moved on to looking at closer and more personal information such as home life and bullying/discrimination. By the end of the research project, my group and I were able to conclude with 3 main findings. First, children with autism were found to have the highest rate of picky eating habits, at 51.4 percent. Second, when looking at percentages of children who were discriminated against due to their disability, ADD/ADHD leads at 30.33 percent. Lastly, children with disabilities lead in all categories of parental factors, which includes having parents that are deceased, divorced or with drug abuse problems. Overall, the purpose of this research is to bring a larger awareness about the many struggles that children with disabilities face daily. This awareness could bring understanding towards child interaction, and bring knowledge about bullying and discrimination.

JINWOO KWAK
Wesleyan University
Understanding Provability in Mathematics and Its Effect on Mathematical Learning.
Location: Centennial

My research question is a pedagogical question that explores how different notions of provability can enhance one's mathematical reasoning and proof construction. I will closely study intuitionistic logic to better understand constructive proof techniques. Moreover, I will study classical logic, and in particular the limits of provability through Gödel's incompleteness theorems. By examining Boolos's book 'The Logic of Provability,' I will investigate how modal logic can provide a logical framework to analyze the provability of mathematical statements themselves, which offers insights on how logic can be used as a tool to reason about what's provable rather than just being able to prove mathematical statements directly.

July 30, 2025 - 10:15 AM - Poster Session 4: Neuroscience

UMME HABIBA
University of Washington
Investigating Sex Differences in Heroin Locomotor Sensitization and Hormonal Adaptations in a Rodent Model
Location: Centennial

Heroin, a commonly used opioid, has played a significant role in the escalating opioid crisis, highlighting the urgent need to better understand the neural mechanisms underlying its addictive properties. Despite well-documented sex differences in opioid use disorder (OUD), the majority of preclinical research has been conducted in male animal models, limiting our understanding of how biological sex influences addiction-related behaviors. This study investigates the role of sex differences in heroin-induced locomotor sensitization and hormonal adaptations in a rodent model. Using a rodent model, we administered intravenous heroin and tracked activity to assess sensitization to the effects of heroin on locomotion. Following treatment, the rats underwent 20 days of withdrawal from heroin. Blood samples were collected throughout treatment and withdrawal to track changes in serum hormone levels. Our findings indicate that female rats show locomotor sensitization at an earlier time point and exhibit a greater degree of escalation compared to males. This suggests potential sex-specific mechanisms influencing opioid addiction vulnerability and progression. We aim to continue quantifying gonadal hormone fluctuations throughout heroin exposure and withdrawal with additional cohorts of animals. Future experiments aim to use fiber photometry to image estradiol activity in the brain during sensitization, providing a real-time insight into its role in opioid-induced changes in behaviors.

KATRINA FONSECA
University of Wisconsin - Whitewater
Despite medical advancements, the prevalence of cerebral palsy has remained steady. Why is that?
Location: Centennial

Cerebral palsy is the most common motor disability in childhood, yet its prevalence has remained remarkably steady over the past four decades, despite major advancements in neonatal care and diagnostic technologies. This literature review investigates the underlying factors contributing to the constant rate. The critical focus is on how race, gender, and socioeconomic status shape the diagnosis, treatment, and outcomes of individuals with cerebral palsy. Focusing on peer-reviewed studies from 2005 to 2024, this review identifies systematic inequalities in access to care, early intervention, and diagnostic imaging in equity that disproportionately affect low-income families, racially minoritized groups, and communities with limited healthcare access. The findings show a significant gap in intersectional research, mostly regarding gender differences in CP presentation and care, and calls attention to the underrepresentation of lived experiences and current data. By synthesizing medical, social, and policy-oriented perspectives, this review argues that CP is not solely a biological condition, but a reflection of deeply rooted social disparities. To achieve equity and outcomes, future research must prioritize exclusive, longitudinal designs and systemic reform to dismantle barriers in early detection and intervention for all children. The review emphasizes the urgent need for more exclusive research to inform policy and practice, ensuring that all children with CP receive timely, high-quality care regardless of their background.

July 30, 2025 - 10:15 AM - Poster Session 4: Psychology and Cognitive Science

DIANA TREJO
Boise State University
Gender Differences in the Impact of Social Media on Health
Location: Centennial

Social media in recent decades has grown to become an essential part of everyday life. The rise of new social media platforms, such as TikTok, has brought many concerns in how excessive usage may or may not affect other areas of life. While prior research has been aimed toward older social media platforms, this study is more focused on the growing impacts of current popular apps, like TikTok, that have yet to be thoroughly researched. This study aims to understand the relationship between social media and health habits such as sleep, body image, and attention span, specifically within college students. Data was collected through a self-assessed survey of 269 Psychology 101 students. Data analysis revealed gender differences in body dissatisfaction associated with social media, so we ran correlations separately for men and women. In women the only significant correlation was social media body dissatisfaction. However in men social media body dissatisfaction correlated with body dissatisfaction and self control. In addition, men's attention span correlated with sleep quality. We are currently coding the responses to our qualitative question that asked about the relation between social media use and attention span. Because late adolescence and early adulthood are crucial developmental periods in an individual's life, findings from this study can benefit in understanding the role that social media plays during these stages. As well as a better understanding of human behavior, cognition, and social influences.

CINDY PEREZ JIMENEZ
Rider University
Urban-Rural Disparities in Mental Health and Neurodevelopmental Diagnosis: Exploring County-level Socioeconomic influences
Location: Centennial

Neurodevelopmental disorders, such as ADHD, affect cognitive processes including attention, organization, and self-regulation, while psychiatric conditions often impact emotional regulation and behavior. Nowadays, diagnosis of both conditions have increased across the United States, though notable disparities exist between counties. These geographic differences may reflect deeper social, economic, and environmental influences (Bhugra & Ventriglio, 2023). This study will investigate how prevalence of mental health conditions, including depression/anxiety, PTSD, OCD, and neurodevelopmental disorders like ADHD, vary at the county level across states. We will examine how key factors such as income, education, health coverage, ethnicity, gender, marital status, healthcare access, and population density relate to these patterns. The geographical information will be analyzed using existing demographic and diagnostic data between 2020 and 2025. Variables will be standardized using z-scores to ensure comparability across regions. The compiled data will be used to map regional differences in diagnosis rates and explore how environmental and demographic factors contribute to disparities between the two conditions. Rural regions are hypothesized to have higher mental health diagnosis rates due to increased social isolation and stigma, whereas urban areas may exhibit higher rates of neurological condition diagnoses because of greater access to health care resources. This research highlights the need for region-specific mental health resources and supports efforts to ensure equitable access to care and implementing targeted interventions to address local disparities.

DIANA MARTINEZ HERNANDEZ
St. Olaf College
Auditory Cognition
Location: Centennial

Auditory cognition encapsulates the intermediary between low-level frequency input and high-level language processing. This lesser-studied area in psychology likely supports first and second language learning and may help researchers explain general, nonspecific deficits in hearing, such as central auditory processing disorders or dyslexia. Two individuals with the same degree of hearing loss may experience different levels of impairments due to differences in auditory cognition. Similarly, two individuals with similar etiologies may show differences when utilizing and adapting to hearing aids or cochlear implants due to auditory cognition. This study aims to explore how auditory cognition determines task performance as measured by pupillometry. In order to do this, three auditory tasks have been developed: the Paced Auditory Serial Addition task, which requires participants to constantly encode, update, sum, and report auditorily presented numbers; the Digit Span (forward and backward), which measures encoding, memory, and task monitoring of increasing strings of numbers; and the Speech in Noise task, where participants must recall the last word of each sentence under difficult listening conditions. Additionally, pupil dilation is a measure of neurocognitive processing and effort, and a custom-made pupillometer will allow us to measure pupil dilation as accurately as possible. A better understanding of how auditory cognition affects hearing levels can be obtained by comparing pupil dilation patterns of a diverse sample of participants across correct and incorrect trials. We hope to use these results to help increase hearing health awareness and to help decrease the stigma in the hearing impairment and loss communities.

CITLALI IBARRA
University of California, Santa Barbara
Investigating the Relationship Between Parental and Personal Attitudes Toward Classic Hallucinogens From Recreational Users
Location: Centennial

This project investigates relationships between parental attitudes toward classic hallucinogens (i.e., LSD, psilocybin, and mescaline) during adolescence, frequency of personal hallucinogen use, and current attitudes toward hallucinogens from the perspective of recreational psychedelic users. Previous literature highlights self-reported benefits, spiritual experiences, and less harm in comparison to other substances when reporting on recreational classic hallucinogen use. However, the associations of parental communication and level of familial religious affiliation with current relationships involving hallucinogens has seldom been investigated. 128 participants took a web-based survey on Qualtrics regarding the parental communication involving classic hallucinogens during adolescence, first age of use, current frequency of use, and personal attitudes toward legality, medical value, and safety of hallucinogenic substances. In comparison with infrequent hallucinogen users, it is predicted that frequent hallucinogen users will indicate significantly higher scores of agreement for the Legal Use of Psychedelics, Effects of Psychedelics, and Openness to Psychedelics portions of the survey. It is inferred that participants who indicate a very religious Christian familial identity will demonstrate significantly higher scores of parental disapproval in the Parental Attitudes portion of the survey. Additionally, the relationship between parental attitudes regarding hallucinogen use and age of the participant during first use will be investigated. The research aim is to explore potential differences between parental communication and the current relationships recreational users have with psychedelics. This is integral in understanding how healthy/unhealthy usage of classic hallucinogens (regarding age during first use and frequency of use) are informed by familial upbringing.

EZME MARTIN
University of Texas at Austin
Measuring Humor in Real-Time Using Continuous-Tracking
Location: Centennial

I will use a novel continuous-tracking technique that will allow us to measure participants' responses to humorous things (e.g., video clips) in real-time, without interrupting their attention to the stimuli. which of course causes participants to reflect on the entire humorous event or sequence of events and then cognitively map that to a number or written answer. This project will serve as a method to quantify humor in real-time, to see if there is a way to learn what is “funnier” through measured language use, joke structure, and humor style (R. A. Martin, 2007; R. Martin & Kuiper, 2016). Participants will use cursor-tracking software to indicate how funny they believe the humorous stimuli are. This research will utilize innovative techniques such as mouse-tracking to assess participants’ responses to various stimuli. (Fahim et al., 2024; Meyer et al., 2023; Potamianou & Bryce, 2024) Through our preliminary research, we have been able to see some promising results that show there is a cognitive process being measured in real-time. We still need to see the correlation between humor and the decision-making process itself, yet this will be an incredible feat for social science researchers. In the current field we work in, there is more and more utilization of computer tasks in research. What we’ve learned so far is that there is a slight difference in data-collection methods, as computer simulation has improved, so has our data-collection. (Rosenbusch & Visser, 2023).

PAUL QUACH
Wesleyan University
The Search for Connection: Narratives of Belonging and Identity during the COVID-19 Pandemic From Socio-Demographic Minority Emerging Adults at a Predominantly White University in the U.S.
Location: Centennial

The motivation to form and maintain close interpersonal relationships is an essential psychological need for well-being and survival (Baumeister & Leary, 1995). The COVID-19 pandemic exacerbated issues of loneliness and isolation among emerging adults at university (Hamza et al., 2021). Furthermore, emerging adults from socio-demographic minority groups in the U.S. may experience unique challenges with social support compared to those who do not identify as socio-demographic minorities (Dubar et al., 2024). The goal of the present study was to explore how emerging adults from socio-demographic minority groups (e.g., racial-ethnic minority, LGBTQ+) experienced belonging at a Predominantly White Institution during the pandemic. Participants (N = 14) were part of a larger longitudinal qualitative study on university adjustment and responded to the following interview question: “Since starting at Wesleyan University, how well do you feel like you fit in as part of the Wesleyan community?” Results of thematic analysis (Braun & Clarke, 2006) indicated 8 key themes: i) "This is Wesleyan": An Inclusive Community; ii) I Don’t Fit the Mold: Barriers to Fitting In; iii) I Fit the Mold: I am Wesleyan; iv) Prioritizing Academic and Establishing Personal Boundaries; v) Finding Community via Shared Identity and Interests; vi) Implications of Social Media; and vii) In Flux Perceptions. These results shed light on how both internal (e.g., identity) and external (e.g., university context) factors contribute to opportunities and challenges for interpersonal connections, and highlight the need for university administration to attend to the unique interpersonal needs of students from diverse socio-demographic groups.

July 30, 2025 - 10:15 AM - Poster Session 4: Sociology and Public Affairs

ZACHARY OSMUN
Rider University
Segregation in the Garden State: A Policy Analysis of Education Finance in Camden and Trenton, New Jersey
Location: Centennial

The most decisive determinant of urban poverty is education, but New Jersey is one of the most segregated in this key source of socioeconomic mobility. In the cities of Camden and Trenton, New Jersey, poverty rates are high, and education is underfunded in comparison to state standards. Although changes have been made, such as the landmark Abbott v. Burke case, which initiated a movement for education funding in 1985, many urban communities remain at risk. Due to the outdated School Funding Reform Act (SFRA) of 2008, which is chronically underfunded and poorly implemented, we are observing lower success rates among our most vulnerable populations, as shown in data provided by the U.S. Census Bureau and the New Jersey Department of Education. For this reason, the correlation between education finance and academic success from 2004 to 2016 will be studied to provide influential information to present to the legislative offices of the New Jersey Legislature and to educate the public about an educational crisis that has been limited by research regarding state and local governments. During this study, data and cohort studies from government resources will be utilized to analyze whether education finance can significantly impact academic success. The goal of this study is to provide an analysis of key New Jersey cities to assist in future legislative changes to resolve current disparities in funding and reduce the risks of poverty in our underserved communities, in New Jersey and across the country.

VERONICA RODRIGUEZ ARELLANO
St. Olaf College
Preparing Pro Se: Navigating Immigration Court Without Legal Representation
Location: Centennial

Research has shown that noncitizens without access to legal representation, or pro se, are significantly less likely to successfully navigate the complex immigration court system and access relief from deportation proceedings. This study examines the multifaceted challenges faced by individuals who must represent themselves in U.S. immigration court and seeks to understand how they could effectively navigate proceedings to improve access to justice and immigration relief. To build this knowledge, we utilize a case study approach, focusing on the Fort Snelling immigration court in Bloomington, Minnesota. Our research is grounded in extensive courtroom observations at Fort Snelling, which capture both courtroom proceedings and the lived realities of pro se noncitizens as described in their hearings. The nuances and narratives captured through courtroom observation are often missing from other research or policy reports, which can overlook the complexities of individual cases. This research is also enriched by semi-structured interviews with attorneys and selected staff who work with noncitizens at the Fort Snelling immigration court. Interviews provide valuable perspectives on who gains access to legal representation (and who does not) and the resources available to both represented and unrepresented noncitizens in immigration court. This comprehensive approach highlights the urgent need for expanded access to legal support in immigration proceedings, emphasizing disparities in access to justice between noncitizens with and without representation and revealing barriers that unrepresented individuals encounter in their efforts to understand and navigate the intricate landscape of immigration laws.

TANNEH DORMOH
The College of St. Scholastica
No More Silence: Pathways for Mexican and Mexican-American Communities
Location: Centennial

In 2025, the Trump administration increased immigration enforcement dramatically with a goal to deport one million people each year, a rate three times higher than previous records. These policies have included U.S. Immigration and Customs Enforcement (ICE) raids at sensitive places like schools and hospitals, more ICE arrests farther from the U.S.-Mexican border, and more expedited deportations. These actions have deeply impacted Mexican and Mexican American communities, leading to unlawful arrests, tearing families apart, and causing anxiety. This research project asks what can lawmakers and legal advocates do to stop the abduction, detention, and deportation of undocumented people living away from the border and how to instead create fair processes, justice-based solutions, and paths to citizenship. Utilizing a qualitative policy analysis approach, we reviewed ICE data; federal, state, and local government policies; and immigrant rights reports to better understand how these enforcement practices work and what alternatives exist. The current policies clearly violate civil rights and hurt Mexican and Mexican-American families. Better access must be granted to lawyers, translators, and community-based support respecting human rights and the Constitution. This research highlights the urgent need for policy changes focused on due process and healing. It offers steps lawmakers and legal advocates can take to protect undocumented Mexican and Mexican American individuals and family members from being unfairly deported.

CYRANO RIVERA
University of Wisconsin - Whitewater
Systemically Casting Out Educators of Color: Effects on Burnout and Culture in K-12 Schools
Location: Centennial

Educators of color are often treated differently by their colleagues and supervisors, leading to a disproportionate level of burnout among educators of color. However, the main source of burnout does not stem from the actions of these individuals; this burnout stems from systemic barriers present in the U.S. education system from ideas about race and ethnicity, including inequitable hiring practices and a lack of school administrative support. These barriers create a culture unsupportive of educators of color. The methodology will target educators of color who have worked in K-12 schools in the United States, collecting data on whether educators of color have faced adverse school culture that has caused them to be burned out. They will be asked if they have noticed any casting out that created a school culture causing them to burn out. Some examples of methods to collect this data are nominal surveys, focus groups, or individual interviews. The anticipated findings are that the educators of color will say that they have experienced burnout based on systemic casting out that created an adverse school culture. There is currently not much existing research that attributes educator burnout to how systemic casting out creates an adverse school culture. Therefore, this research is important because it showcases examples of systemic casting out to avoid perpetuating negative ideas of race and ethnicity. Supporting educators of color also empowers students who lean on educators of color as mentors, thus creating a supportive environment for both educators and students.

VENUS MARROQUIN
Wesleyan University
“There’s absolute dark and absolute light and so many feet in between.” What it means to make lighting accessible in a small college town
Location: Centennial

The evolution of public lighting is considered one of humanity’s greatest feats; being able to see at night and even bringing a sense of safety for many. However, in recent decades, there has been an uproar about how the improper use of lighting pollutes the skies, and even creates a bigger danger than having no lights at all. Many of these complaints often stem from the field of astronomy, as intruding lights affect how well observations can be done. This project involves tying together the history of lighting in Middletown, CT and how it has affected Astronomical research, and fulfilling the mission of public outreach. In order to do so, we have to use the glass plates that were used to take photographs of the sky from the mid 1920s to mid 1990s. Astronomers used these glass plates for parallax research, where each individual glass plate has three to four observations. Given that the observatory has over 50,000 of these plates, we have to look through the logs and determine what objects have the brightest sources. To accurately determine how much lighting poured into the dome during each observation, we must measure the least bright source from each plate and compare it to campus and civil lighting maps. We hope to determine the extent to which this lighting has changed over time and its effect on the effective performance of parallax research.

July 30, 2025 - 10:15 AM - Sociology and Public Affairs Breakout VII: Panel D

BOB YANG
University of Minnesota - Twin Cities
Orthographic Reform of the Romanized Popular Alphabet: Insights from Native Hmong Language Experts
Location: Discovery

The Romanized Popular Alphabet (RPA) has been the primary writing system for the global Hmong diaspora since the 1950s, but today native Hmong speakers and language experts in the United States increasingly question its suitability for the contemporary Hmong-American community. Although there have been prior efforts to reform the Hmong RPA writing system, very little documentation exists of these initiatives or the evolving views of the Hmong over time. To address this gap, this study interviewed fifteen native Hmong language experts to gather their perspectives on the current status of the Hmong RPA writing system and whether changes are needed to better serve the Hmong-American community. Results found that a few participants preferred to preserve the existing structure of the RPA, while the majority of the participants advocated for reform, expressing a desire to simplify clusters, align consonant representations more closely with English, use diacritics to mark tone and aspiration, and work toward dialectal unification. These findings highlight the tension for the Hmong people between preserving cultural identity as a stateless diasporic minority and adapting to changing linguistic environments in order to maintain and transmit their language.

JOSHUA JARIKRE
Bowling Green State University
AI for Education in Nigeria: Bridging Language Gaps and Infrastructure Challenges
Location: Discovery

Nigeria’s educational system faces significant challenges in delivering inclusive learning, particularly due to language barriers and infrastructural limitations. Most classrooms operate in English, despite the country’s rich linguistic diversity and existing policies that support mother-tongue instruction. This mismatch often leads to confusion, reduced engagement, and poor academic performance, especially among students from rural or indigenous communities. This research investigates how artificial intelligence (AI), particularly large language models (LLMs) and speech technologies, can help bridge the gap between Nigeria’s multilingual realities and its English-dominated education system. Drawing on literature, government policy updates, and real-world AI applications, the study explores how tools like personalized language support, adaptive content delivery, and real-time translation can foster inclusive and culturally responsive learning. However, the research also identifies major obstacles to implementation: poor broadband penetration, lack of digital literacy, limited teacher training, and the absence of localized language datasets. These challenges prevent widespread access to AI-powered educational tools, especially in underserved areas. The study uses both Nigerian and international case studies (including India and Singapore) to highlight models for scalable AI integration in multilingual settings. It proposes targeted solutions such as government-funded internet access in schools and the development of indigenous-language AI models to meet local needs. Ultimately, this research argues that AI holds real potential to promote equitable education in Nigeria, but only if supported by strategic investment in digital infrastructure and culturally relevant innovation.

KACHSIA VUE
University of Minnesota - Twin Cities
Rising Language Shift in the Hmong Community: Causes and Implications
Location: Discovery

The Hmong people are among many ethnic groups who are at risk of losing their heritage language as they increasingly adopt the language of their host country. Research suggests that most second- and third-generation Hmong children are more likely to speak English to their parents and family members. McLit: Marathon County Literacy Council, Inc. (2020) predicts that by the end of the twenty-first century, the Hmong language will completely disappear. The purpose of this study was to examine members of the Hmong community's perceptions about the Hmong language and factors that contribute to the language shift. Data used for this research included 151 community members (87 males, 64 females), ages ranged from 18 to 79 (mean 51.57, SD 14.34), who participated in 33 focus groups at a public event sponsored by the Hmong RPA Writing System Project in January 2025; and 11 interviews were conducted with Hmong community linguist experts who have studied and contributed to the Hmong RPA writing system. Results indicated that 71 percent of community members believed the Hmong language is either threatened or endangered, where some adults in the Hmong community are Hmong speakers, but the language is not spoken by children. They believed the major contributing factors to this language shift were the lack of exposure, the inaccessibility of Hmong library materials, and the limited availability of research literature on the Hmong Language. There will be future research recommendations included in the discussion section.

DAISY NEVAREZ
Bowling Green State University
Generative AI in Education: The Policy Gap at Universities in Ohio
Location: Discovery

The rise in generative artificial intelligence (AI) usage amongst students across universities has posed significant challenges and questions regarding institutional response and developing policies to ensure ethical application. Investigating how public and private universities in Ohio respond to the expanding integration of AI through curriculum offerings and policy development is significant in examining the gap between AI adoption and institutional policy response. Through analysis, research reveals a widespread lack of transparent, explicit, and enforceable AI policies for students despite high AI usage levels among the university population and the development of AI curricula and programs. While both sectors show policy gaps, private institutions lag further behind in formalizing AI governance. However, public universities have nearly 100,000 undergraduate and graduate students as of Fall 2023, roughly 33 percent of the total student population enrolled at an Ohio public university, without a university-wide AI policy. The research draws upon document and guideline examination of institutional websites, university policy catalogs, and curricular offerings regarding AI across a sample size of all public and private universities in Ohio. Proactive, transparent policy creation is essential to govern AI usage and ensure student accountability and institutional receptivity to rapidly evolving technological advancements within society. These gaps have implications for academic integrity, equity, instructional procedures, and future policymaking as universities navigate the expanding role of AI in instructional environments. The findings uncover a growing disconnection between developing technological transformation and institutional governance, illustrating an urgent need for universities to establish frameworks and policies about ethical AI usage.

July 30, 2025 - 1:30 PM - Biology Breakout VIII: Panel D

NATALIA ZAVALETA
St. Edward's University
Morphological Divergence in Response to Urbanization in Sceloporus olivaceous
Location: Pinnacle

Human interaction, in the form of urbanization, has been rapidly altering natural environments, leading to phenotypic changes in endemic species. A trait of interest is claw morphology, which aids in the movement and overall survival of lizards in both urban and natural environments. The primary objective of this study is to analyze the difference in claw morphology between populations of urban and natural Texas spiny lizards (Sceloporus olivaceus), a species commonly seen in both environments. S. olivaceus were collected from both environments in Texas, and high-resolution images were taken of the claw on the fourth finger (largest finger) on both the arm and leg. A full curvature analysis was conducted utilizing the image processing software FIJI along with the Kappa plugin. To compare and test for differences in overall claw curvature between the two populations, an analysis of covariance (ANCOVA) was conducted using R. Body size (snout-vent length) and sex were considered as covariates. This research contributes to the growing field of evolutionary ecology by examining whether morphological changes occur under the pressures of urbanization. Understanding these changes in species can provide insight into how urbanization affects their ability to adapt, which can hopefully aid in the development of more effective conservation practices and the preservation of natural habitats.

FIONN MEEHAN
Knox College
Are Baseballs a Hidden Reservoir for MRSA? A Microbial Survey of Collegiate Sports Gear
Location: Pinnacle

Methicillin-resistant Staphylococcus aureus (MRSA) is an antibiotic-resistant bacterium that poses serious health concerns in both athletic and clinical settings. It is often found in high-contact sports, such as football and wrestling, where skin-to-skin contact and shared equipment increase the transmission of bacteria. However, little research has been done on the presence of MRSA in lower-contact sports like baseball and softball. This study aims to find out the potential presence of MRSA and related bacteria across collegiate baseballs and softballs. To address this, the prevalence of Staphylococcus colonies on collegiate baseballs and softballs was measured. This was accomplished by swabbing and culturing the samples on Mannitol Salt Agar to promote the growth and identification of Staphylococcus colonies. Colonies were restreaked for isolation and tested for mannitol fermentation (color change), gram staining (cell type), and cell morphology. Confirmatory testing included antibiotic resistance using oxacillin discs and coagulase activity. Many isolated samples showed characteristics consistent with Staphylococcus, including mannitol fermentation, gram-positive staining, and cocci morphology. Despite this, all isolates tested negative for coagulase activity, indicating none were Staphylococcus aureus. However, one isolate showed no zone of inhibition in the oxacillin test, but this is most likely attributed to the isolate being gram-negative, making it unsusceptible to oxacillin to begin with. Staphylococcus isolates were often found on most sampled baseballs and softballs. Ongoing testing comparing high-contact surfaces on campus will help to assess the broader presence of MRSA in community environments.

LILLIAN MCNEAL
Fayetteville State University
Exploring the Antimicrobial Potential of Tomato Extracts Against ESKAPE Pathogens
Location: Pinnacle

Antibiotic resistance is a growing threat to global health, and some of the most difficult bacteria, according to the CDC, to combate are ESKAPE pathogens. These bacteria are common in hospitals and long-term care facilities, where they pose serious risks to patients with weakened immune systems. As traditional antibiotics are becoming less effective, scientists are exploring natural alternatives. One of the interests to our lab are tomatoes who are known for their natural acidity and for containing antimicrobial properties. These two attributes make it hard for bacteria to survive. In our study, we created red and green tomato extracts and tested them in their ability to inhibit the safe relatives of ESKAPE pathogens. In our experiments, we found that our red tomato extract formulation had stronger antibacterial effects and was able to inhibit some of our tested safe relative ESKAPE pathogens. We also were able to see that through heat inactivation, our extract's ability to inhibit the safe relative ESKAPE pathogens decreased. This suggests that the potential antimicrobial products becomes inactive/denatured in high heat environments. These results fit into a larger trend described in the literature that many plant-based compounds show promise against drug-resistant bacteria and should be further explored to help compbate the rise of antibiotic resistant bacteria. We hope that our research can lead to a natural compounds that could help develop new ways to treat bacteria infections.

SHANIE JORGENSON
University of Oregon
Exposure to chemical signatures of fish predation increases juvenile survivorship in Daphnia lumholtzi
Location: Pinnacle

Aging is a universal component of biology. Research on variation in aging has identified both genetic and environmental factors. In addition, this research has helped to identify interventions, such as calorie restriction, that can extend lifespan. However, the molecular mechanisms by which environmental exposure influence variation in aging are still largely unknown. We used Daphnia as a model organism to study environmental elements of aging. Daphnia are well known for their ability to respond to environmental changes and predatory cues. The purpose of this study was to determine if predation cues could affect longevity in Daphnia lumholtzi. To do this, we tracked survivorship of the 4th generation of Daphnia lumholtzi reared in artificial lake media with or without fish conditioning. We found that Daphnia lumholtzi treated with fish media had a lower mortality rate than control Daphnia lumholtzi, and the first 10 days showing the most significant difference in mortality rate. This suggests that predatory cues impact survivability at different life stages in Daphnia lumholtzi. These findings set the stage for subsequent research examining the role of differential gene expression in mediating the environmental effect on longevity.

July 30, 2025 - 1:30 PM - Education Breakout VIII: Panel B

JAIMIE SINCHE SINCHI
Augsburg University
Barreras Entre Éxito: The Experiences of Latino First-Generation College Students
Location: Odyssey

The challenges that Latino first-generation college students face when attending college in the U.S., especially those who were born to immigrant parents, are unique. It is important to explore the students' navigation through college and how their backgrounds impact their ability to access resources such as financial aid, academic support, and mentorship. Research indicates that this population of students faces several challenges as they pursue higher education. Many struggle with financial issues and a lack of guidance with regard to the college application process, making it difficult for them to access important resources, such as faculty mentors and academic advisors. Additionally, they often feel torn between family obligations and their own educational goals. Many families expect them to financially contribute to the household, adding stress on top of their educational demands. Institutions also fail to provide the necessary outreach and support services many Latino students need, leading to higher dropout rates among this group. This study is designed to understand how Latino first-generation college students' experiences and the barriers they face influence their access to and success in higher education. Based on a sample of ten such students in their third and fourth year of college, a series of semi-structured, intensive interviews lasting between 45 and 90 minutes each were conducted to capture their personal stories, how they navigated the educational system, the challenges they faced, and how they overcame them as they approach the end of their college experience.

ANA MICHELLE GUERRERO-RIVERA
University of Wisconsin - Madison
Storytelling and STEM practices in Latine-Heritage Families
Location: Odyssey

Research shows that storytelling strengthens intergenerational bonds by passing down values, histories, and knowledge (Vasudevan et al., 2022). Additionally, storytelling provides a context for the development of STEM-related practices, like asking questions, explaining, and making sense of the world through observation and reasoning. While existing studies emphasize the cultural and emotional dimensions of storytelling, few have examined how storytelling is associated with scientific practices like questioning and explaining during everyday interactions. Latine children often initiate science-related conversations in natural, home-based settings (Castañeda et al., 2022). These interactions, typically about animals, plants, or weather, frequently start with children's spontaneous questions and are full of explanations, analogies, and observational reasoning. The current study explores connections between storytelling and everyday STEM practices of asking questions and providing explanations using semi-structured interviews with Latine caregivers of preschool-aged children. Preliminary self-reported data with 81 Latine caregivers (71 mothers, 5 fathers, 5 grandmothers) living in New York City suggests that 77% of caregivers share stories with their preschool-aged children (Mage = 50 months). Out of those who share stories, 0.23 share stories everyday, 0.23 share every 1-2 days, 0.13 share every 3-4 days, 0.20 share once a week, and 0.18 share once a month. Future analysis will explore themes in caregiver-child STEM practices, specifically question asking and explanations. By examining these practices, we can better understand how storytelling functions not only as a mode of cultural transmission but also as a foundation for cognitive and scientific development in young children.

JOCELYN TORRES
University of California, Los Angeles
Sembrando Semillas: Bridging the Gaps in the Pipeline of Latinx Students from the Central Valley Entering Higher Academia
Location: Odyssey

This study investigates the post-high school trajectories of Latinx students in California's Central Valley, a region known for its high Latinx population and underfunded schools. Latinx students from this region tend to have lower higher education enrollment rates as many students go on to become farmworkers, pursue post-secondary education within the area, or pursue a career that doesn't require higher education. Understanding why and what factors students consider when making decisions about their post-high school pursuits is vital. Using LatCrit as a framework, the study will examine the intersectional identities and lived experiences of Latinx high school juniors and seniors, focusing on factors that dissuade them from pursuing higher education. The study will employ platicás as a culturally familiar practice expressed by the Latinx community to gather insights from my collaborators about their educational experiences and aspirations. The findings will provide much needed insights into how we can improve outreach and equitable educational practices to empower Latinx students in the Central Valley. This study will also help us better understand this region's inequities and address the academic needs of the Latinx community in the Central Valley.

NOAH SANCHEZ
University of California, Davis
“¡Viva la joteria!”: An overview of joteria and muxerista studies in higher education and student affairs literature
Location: Odyssey

In recent years, researchers and theorists have developed multiple theoretical frameworks and pedagogical approaches for serving, sustaining, and empowering queer Chicanx/Latinx students and other Queer Students of Color (QSOC). Drawing from a lineage of Black, Indigenous, and Chicana feminist scholarship in educational research, specifically, a collective of queer Chicanx/Latinx scholars have conceptualized culturally-specific, experientially-grounded “Muxerista” [womanist] and “Joteria” [queer Chicanx/Latinx] pedagogies and developed further implications for educational research and praxis. Such developments have utilized Muxerista and Joteria analytics to outline community-centered epistemologies and classroom-based pedagogies and frameworks; however, further study is needed in exploring such theories, epistemologies, and pedagogies outside of the classroom. Providing an overview of Muxerista and Joteria scholarship, I intend to amplify the possibilities of such frameworks in the cultivation of both educational research study and Student Affairs praxis outside of classroom contexts. In doing so, I mobilize these fields outside of the classroom and, further, outside of the temporal-spatial university to outline future directions for Higher Education research and praxis that aims to nurture QSOC across space and time.

July 30, 2025 - 1:30 PM - Humanities Breakout VIII: Panel D

RACHEL SCHNAKENBERG
University of Texas at Austin
Church-Based Volunteerism as Social Capital: Social Factors of Community Resilience to Disaster in Rural East-Texas
Location: Innovation

Increased precipitation and drought intensity in the southeastern region of Texas has led to increasingly frequent disasters; for impoverished rural communities in East Texas, recurrent and expensive disaster mitigation and recovery relies heavily on social capital resources. Previous research on social capital has identified the necessity of organizing groups, such as clubs or churches, for the development of community capital. However, while research has investigated social capital in religious groups, rural non-traditional religious groups remain under-studied in relation to volunteerism and civic pro-sociality. This study employs an ethnographic approach, with data from participant observation and in-depth interviews, to investigate the social ties and civic activity of a small non-traditional evangelical church in rural East Texas. Preliminary data indicate that congregant identity as non-typical Christians, especially in the setting of motorcycle club culture, has a significant influence on the efficacy and frequency of religious and secular volunteerism and civic action. Within the context of disaster recovery, this study suggests a relationship between non-traditional organizational structures and broadening social capital networks.

JACOB SCHNEIDER
Knox College
The Tri-State Reconstruction: How Communities Form Around Temples of Reconstructionist Judaism Within the Tri-State Area
Location: Innovation

How a community serves the people in the Jewish religion has always been discussed by academics and scholars involved in understanding the operations of Judaism. However, community building in Reconstructionist Judaism forces new considerations between faith, practice, and the meaning of religious affiliation. This is particularly noteworthy because of the individualist approach of Reconstructionist practice. Some scholars like Yuval Jobani have sought to define how Jewish communities operate as a secular culture outside of the religious context, and other scholars like Angelika Rohrbacher have sought to define what constitutes an insider to Judaism. Yet, few have sought to define the actual boundaries of a Jewish community. My research explores how Reconstructionist Jews in two New Jersey congregations understand their own communities. Membership to a Reconstructionist community is defined by your perceived willingness to be a participant and showcasing to others that you are invested in connecting with the community. Through participant observations and interviews, I look for overlap, like welcoming processes and popular rituals they have in common, between the two locations to find a consistent understanding that applies to both. Being a willing participant in the cultural practices of the community can allow someone to be integrated into the religious community regardless of their personal religious status. By analyzing how members of a community understand themselves, we can discern what the boundaries of the community actually are. Understanding what defines the community boundary allows future comparison of Reconstructionist communities to other religious communities and the ways they operate.

SUZETTE ESCAMILLA
University of California, Riverside
Religion and Resistance: Apollo as Patron God of Social Struggle
Location: Innovation

Many people know Apollo for the characterizations of him in popular culture, but what they do not know is that the image of Apollo has been used throughout history in times of crisis. Despite the massive cultural shifts from Ancient Greece to Ancient Rome, the god Apollo was the only major god to maintain his same identity. Since then, he has maintained relevance stemming all the way from his ancient Greek mythology days, to appearances in modern pop culture. The purpose of this presentation is to argue and observe how—and, more importantly, why—various aspects of Apollo's godhood, such as prophecy, healing, plague, and queerness, resonate with such a wide variety of audiences spanning centuries. Specifically, I analyze how social resistance plays a massive role in giving Apollo his legacy and longevity. By using various examples of literature, films, and other modern media, I will analyze the impact of Apollo's godhood throughout both ancient and contemporary times. Through this project, I show that Apollo's longevity goes beyond mere popularity, but rather that his representation in times of struggle demonstrates their persistence through history.

THOMAS NALI III
University of Minnesota - Morris
Casting Stars, Drawing Cards: Faivrean Analysis and Pedagogical Design in Contemporary Occult Literature
Location: Innovation

Western esotericism reveals symbolic coherence and patterned logic, especially as held to Antoine Faivre's rubric and comparative methodology. A departure from this framework's typical application to historical sources, this research applies rigorous academic criteria to modern esoteric texts. This study is a critique and structural analysis of Seventy-Eight Degrees of Wisdom, Rachel Pollack's seminal work on the tarot (Golden Dawn/Rider–Waite–Smith), and The Easiest Way to Learn Astrology by Dusty White—two modern, influential occult-literary works. Both engage complex symbolic systems yet differ sharply in their presentation. White's tightly sequenced instructional system is delivered in an amicable tone, while Pollack approaches tarot through a poetic bias, resistant to formal scaffolding. Through Faivre's lens, this project asks: (1) How do these works uniquely express core characteristics of Western esotericism? (2) How is reader access to symbolic understanding shaped by structure, style, and tone? What challenges emerge when engaging these texts as a newcomer? (3) How can we leverage Dusty White's instructional structure and widely accepted inter-system correspondences in support of accessible and scaffolded entry from introductory astrology into introductory tarot study? This research contributes to ongoing conversations about ideal approaches to Western esoteric pedagogy.

July 30, 2025 - 1:30 PM - Neuroscience Breakout VIII: Panel B

ANTHONY IMBERT
University of Wisconsin - Madison
Comparative Analysis of Language Impairment in Left versus Right Stroke Patients: A Preliminary Study
Location: Pathways

Aphasia occurs when neural networks responsible for language processing are disrupted, often due to stroke-related damage. This study investigated whether left-hemisphere strokes produce more pronounced deficits than right-hemisphere strokes in seventeen participants with post-stroke aphasia. The Western Aphasia Battery-Bedside was used to analyze spoken discourse, reflecting natural language use, measuring unfilled pauses (delays in verbal responses) and repetition behaviors (retracing). These features provide insight into underlying impairments in word retrieval and sentence formulation (Casilio et al., 2021). These participants were a part of a subset of an ongoing longitudinal study. Unfilled□pause and retracing behaviors were quantified from language samples. No notable significant statistical differences emerged between left– and right-hemisphere groups for unfilled pauses ($W = 24$, $p = 0.3$) or retracing behaviors ($W = 24$, $p = 0.35$). Severity scores also did not differ across groups. These findings may reflect limitations due to sample size; future studies with larger samples are needed to clarify potential hemispheric differences. Future work will include additional variables such as age, gender, and lesion volume to assess the interaction of neurobiological profiles on aphasia severity. Insights from this work may inform tailored individualized rehabilitation strategies to enhance improve communication outcomes in post-stroke aphasia.

LOR SMITH
St. Edward's University
Neuroimmune Crosstalk: Linking Cholinergic Signaling to PMK-1–Mediated Intestinal Immunity in C. elegans
Location: Pathways

Innate immunity serves as the body’s first line of defense against pathogens, relying on the recognition of general microbial features rather than pathogen-specific markers. The intestinal epithelium plays a crucial role in this system by simultaneously combating harmful microbes and tolerating beneficial ones. To maintain homeostasis, this innate response includes the regulated expression of antimicrobial peptides (AMPs), often mediated by evolutionary conserved signaling cascades. One such pathway is the p38 MAPK pathway, which in C. elegans is represented by the PMK-1 MAP kinase. PMK-1 is essential for intestinal immunity and is activated in response to microbial threats, leading to AMP production. While GABAergic signaling has been shown to modulate innate immunity by activating PMK-1, the role of cholinergic signaling in this context remains poorly characterized. This study investigates whether cholinergic signaling is required for PMK-1 activation and AMP expression in response to infection with Pseudomonas aeruginosa PA14, a pathogen that lethally accumulates in the intestine of C. elegans. We will use survival assays to assess susceptibility to infection in wild-type and cholinergic signaling-deficient mutants. Additionally, we will examine PMK-1 activation by monitoring the phosphorylation of PMK-1. Last, we will study AMP expression using transgenic nematodes that express GFP under the control of an AMP promoter. These experiments aim to establish a link between cholinergic signaling and the PMK-1 pathway, advancing our understanding of neuroimmune regulation in innate host defense.

SUWAYDA SAID
University of Washington
Asymmetry and sex effects in the red nucleus of the human brainstem.
Location: Pathways

The red nucleus is a structure in the midbrain heavily involved in the relay of cerebellar signals to the cerebral cortex. However, the red nucleus is difficult to study in structural MRI due to poor contrast with surrounding structure or variable signal. In the current study, we used a novel MRI approach based on the spherical mean of the diffusion MRI scan to enhance visualization of the red nucleus. Using this method, we developed a protocol to reliably delineate the red nucleus using manual segmentation methods. The red nucleus was segmented bilaterally in 99 young adult subjects (49 males, 50 females) from the Human Connectome Project Young Adult database. Results showed that the left and right red nuclei from male participants were significantly larger than in females. However, after normalizing volumes by estimated intracranial volume to account for head size differences, no significant sex differences remained for either red nucleus. Paired comparisons showed that the left red nucleus was significantly larger than the right red nuclei in both raw and in normalized volumes. This asymmetry was independent of sex. These results suggest that the red nucleus is anatomically lateralized in the young adult human brain and indicate that the communication between the left cerebral cortex and the right cerebellum is more robust than the circuits between the right cerebral cortex and right cerebellum. Future studies will examine this issue further using diffusion MRI-based tractography.

July 30, 2025 - 1:30 PM - Poster Session 5: Chemistry and Biochemistry

BRIANA ROJAS
Boise State University
CAPP - An Innovative Approach to Pathogen Decontamination in Agricultural Products
Location: Centennial

Foodborne pathogens (e.g., Salmonella enterica, Escherichia coli O157:H7) and plant pathogens (e.g., Pseudomonas syringae, Fusarium graminearum) inflict substantial public health and economic burdens, contributing to 48 million illnesses, 3,000 deaths, and $21 billion in annual U.S. agricultural losses. This study investigates the efficacy of Cold Atmospheric Pressure Plasma (CAPP) technology for pathogen inactivation on agricultural products. Specifically, we harness CAPP-generated Reactive Oxygen and Nitrogen Species (RONS) to oxidize and kill these pathogens. Pathogen-inoculated popcorn, sweetcorn, cucumber, onion, mung bean, and radish seeds served as models for real-world agricultural contamination. Our results demonstrate that a 15-minute CAPP treatment consistently achieves up to 99.9% pathogen inactivation. Importantly seed health was preserved, as evidenced by unaffected germination rates and seedling vigor. These findings underscore the potential of CAPP-generated RONS as a safe, effective, and chemical-free alternative for mitigating pathogen spread in agriculture, ultimately enhancing food safety and crop health.

EUGENE MULINDE
University of Alaska, Anchorage
Determination of Heavy Metals in Whey and Vegan Protein Powders using Inductively Coupled Plasma Mass Spectrometry
Location: Centennial

Protein powders are widely used by athletes and health-conscious individuals to support muscle growth, recovery, and meet daily protein needs. These supplements are commonly derived from either whey, a byproduct of cheese production, or plant-based sources such as pea, soy, rice, and hemp. However, environmental contamination from industrial activities can introduce toxic heavy metals into ecosystems where these protein sources are cultivated. Plant roots readily absorb metals from soil and water, increasing the risk of accumulation in vegan protein powders. In contrast, animal-based products like whey may contain lower metal concentrations, as the liver and kidneys in cows filter and bioaccumulate metals away from milk. This study aimed to assess and compare the levels of four toxic heavy metals: arsenic (As), cadmium (Cd), chromium (Cr), and lead (Pb) in vegan and whey-based protein powders. Samples were subjected to microwave-assisted acid digestion and analyzed using inductively coupled plasma mass spectrometry (ICPMS). A multi-point calibration curve ranging from 0.1 to 1000 ppb was used. Quality control included method blanks and routine instrument rinsing. None of the analyzed samples produced quantifiable signals for any of the selected metals within the calibration range. These findings suggest that the tested protein powders do not contain detectable levels of heavy metal contaminants under the conditions used in this study. While the results do not support the initial hypothesis, they indicate that both whey and vegan protein powders may be free from concerning levels of As, Cd, Cr, and Pb.

CONNOR KUHN
University of Minnesota - Morris
Developing Benzyne Chemistry: Synthesis and Optimization of Novel Precursors
Location: Centennial

Poly-substituted benzene rings are a cornerstone of the pharmaceutical industry, as they enable a versatile framework for the design and synthesis of life altering drugs. Benzynes, benzene rings with a strained triple bond are an underutilized solution to the generation of poly-substituted benzene rings. This can be attributed to two issues: 1) the incompatibility of functional groups on the parent benzyne precursor with the required external activation conditions and 2) the transformation of the precursors requires tedious linear syntheses that often involve harsh conditions making them impractical for prospective use. One method that circumvents these problems is the use of 2-Fluro-6-iodobenzoic acid derived benzyne precursors. These precursors are synthesized in 1 step and can be functionalized in a single NAS reaction, which in turn enables benzyne precursors to have increased functional group compatibility and a shorter synthesis. The aim of this research is to develop the NAS of these benzyne precursors by optimizing various reaction conditions including the nucleophile, solvent, base, and reaction temperature. The findings of this research may contribute towards a more agreeable synthesis of benzyne precursors and the broader knowledge of benzyne chemistry.

July 30, 2025 - 1:30 PM - Poster Session 5: Math, Statistics, and Physics

EDUARDO CHAMORRO
California State University, Stanislaus
Indistinguishability of Directed Cycle Models
Location: Centennial

Linear compartmental models (LCMs) have broad applications in fields like pharmacokinetics, epidemiology, ecology, and systems engineering, where they are used to describe the movement of substances or information between different compartments. A central challenge in the study of LCMs is identifying situations where models with distinct graphical structures can be indistinguishable. This study builds upon Dr. Bortner's work by investigating the indistinguishability of directed cycle models, a type of LCM. Through a graph theoretical approach, we developed Python code to generate information about directed cycle LCMs, which we use to highlight the connections between model structures and their corresponding input-output equations. The primary objective is to uncover additional conditions for indistinguishability, enhancing the understanding of the structural and algebraic factors that contribute to it. The outcomes of this research are crucial for furthering the application of LCMs in various fields, especially in situations involving directed cycle models, providing valuable insights into their practical use and limitations.

ETHAN CHU
Wesleyan University
Developing a Framework to Analyze Patent Innovation: Insights from Firearm Patents
Location: Centennial

Analyzing millions of patents and their classifications throughout time is a challenge for many researchers studying patent innovation. In this study, we create a reproducible metric to analyze innovation over time by observing the hierarchal changes in networks of classification throughout time. We also propose a new metric when looking at innovation throughout time by developing a framework for an evolutionary neural network. While our findings are primarily towards the field of firearm patents, this methodology can be generalized to other technological domains.

July 30, 2025 - 1:30 PM - Poster Session 5: Microbiology, Immunology, Molecular Genetics

RIHANNA CLAYTON
Rider University
Immune Tolerance in Pregnancy: Exploring Potential Interplay of Multiple Immune Cell Types
Location: Centennial

Pregnancy presents an immunological conflict. The fetus, despite expressing foreign paternal antigens, does not face rejection by the maternal immune system. Instead, the maternal immune system accepts the semi-allogeneic fetus. This process is called maternal-fetal immune tolerance, a regulated process at the maternal-fetal interface. This tolerance is not one dimensional, and is carried out by numerous immune cell populations, which provide protection to the fetus without causing detriment to the mothers ability to fight infection. Among contributors to immune tolerance, myeloid-derived suppressor cells (MDSC's), and regulatory T-cells (Tregs), share suppressive functions. MDSC's, immature myeloid cells, inhibit T-cell activation and processes related to inflammation. On the other hand, Tregs enforce peripheral tolerance and inhibit effector T-cells such as CD4's. It is unclear if both act through complementary mechanisms during pregnancy. Although both MDSC's and Tregs are recognized individually as key players in immune tolerance during pregnancy, how they interact, co-regulate, or potentially act synergistically during the period of gestation is not yet fully understood. This project presents a review of recent literature focusing on the development, function, and dynamics of MDSCs and Tregs in pregnancy. Peer-reviewed sources published within the past five years will be analyzed to clarify how immunosuppression is carried out during pregnancy. Emphasis is placed on their roles at the maternal-fetal interface and how their dysregulation may contribute to adverse pregnancy outcomes.

KYLIE RICHARDS
The College of St. Scholastica
Inhibiting PDK4 as a Therapeutic Target for Triple Negative Breast Cancer
Location: Centennial

Breast cancer research has advanced significantly in recent years, leading to the identification of three key receptors as actionable targets for treatment: estrogen, progesterone, and HER2. Drugs that target these receptors demonstrated dramatic improvements in women who express these markers. However, one subtype of breast cancer, triple-negative breast cancer (TNBC), lacks expression of all three receptors, resulting in limited treatment options and rapid tumor progression. Identifying a molecular target that promotes TNBC malignancy is critical for developing a therapy that improves patient survival. Recent studies identified pyruvate dehydrogenase kinase 4 (PDK4), a metabolic enzyme involved in regulating glucose oxidation, as a potential driver of tumor growth and therapy resistance in TNBC. In this study, we investigated the impact of PDK4 inhibition on cell growth and migration in TNBC. Using Western blotting, we found that PDK4 is overexpressed in a TNBC cell model. This elevated expression is a common feature of the TNBC subtype and may contribute to its aggressive behavior and poor clinical outcomes. To further explore the therapeutic potential of targeting PDK4, we tested an orally bioavailable inhibitor, PDK4-In-1, using cell proliferation assays and a modified scratch assay. Treatment with PDK4-In-1 reduced TNBC cell proliferation and migration. These findings suggest that PDK4 overexpression plays a key role in TNBC progression and highlights it as a potential therapeutic target. Ongoing research will focus on validating these findings in patient-derived models and across multiple TNBC cell lines.

IQRA DUBED
University of Alaska, Anchorage
Cormorant Diversity in the Aleutian Islands
Location: Centennial

The Aleutian Islands support a diverse community of cormorants, including Urile urile (Red-faced Cormorant), Urile pelagicus (Pelagic Cormorant), and Nannopterum auritum (Double-crested Cormorant), along with a potentially distinct and understudied form referred to as "Kenyon's Shag" (Urile kenyoni, KESH). First identified from skeletal remains by Doug Causey, KESH displays a suite of unique traits including smaller adult body size, distinct skeletal features, and facial coloration patterns not fully aligning with either PECO or RFCO. Despite these differences, it remains unclear whether KESH represents a valid species, a morphological variant, or a hybrid form. This project combines field sampling across multiple Aleutian and Bering Sea localities with genetic analysis to address three primary questions: (1) Can KESH individuals be distinguished using molecular markers? (2) How genetically divergent are KESH individuals from other cormorants in the region? (3) What is the phylogenetic relationship among Aleutian Urile species? In addition, the project seeks to develop rapid diagnostic tools for species identification. Broader evolutionary hypotheses suggest KESH may represent a relic lineage persisting after Pleistocene range shifts, a stable hybrid between RFCO and PECO, or an emergent taxon under selection for distinct ecological traits. Regardless of its taxonomic outcome, the study of KESH highlights important evolutionary dynamics within seabird populations and contributes to our understanding of avian diversity and speciation in remote high-latitude ecosystems.

RUTH TEEPLE
University of Minnesota - Morris
Investigating Lymphopoietic Restoration Upon p16ink4a Ablation in Hoxa9-Deficient HSPCs
Location: Centennial

In older individuals, there is a decrease in immunity and an increase in the incidence of leukemia associated with dysfunctional lymphopoiesis. The homeobox transcription factor Hoxa9 is heavily involved in the regulation of hematopoiesis. In early hematopoietic stem cells (HSCs), it is highly expressed, but downregulated upon commitment to a specific lineage. Animals deficient in Hoxa9 display an "aged" hematopoietic phenotype, with HSCs biased towards commitment to a myeloid lineage. Prior research has shown that Hoxa9 is a negative regulator of the cyclin-dependent kinase inhibitor p16ink4a. p16ink4a is upregulated both as an individual ages and in the absence of Hoxa9. Ablation of p16ink4a in Hoxa9-deficient animals results in a restoration of lymphopoiesis. These animals display a balanced blood cell compartment, closer to that as observed in wildtype mice, however their HSC compartment still displays a myeloid bias. To understand the role of Hoxa9 and p16ink4a in lymphopoiesis and the myeloid bias that presents with age, the bone marrow of Hoxa9 -/- and p16ink4a -/- mice in addition to Hoxa9 -/- p16ink4a -/- double knockout animals was studied using cytokine stimulation and CFU assays.

July 30, 2025 - 1:30 PM - Poster Session 5: Psychology and Cognitive Science

JOSELYNE NAVARRETE
Boise State University
Stakeholders' Perceptions of Idaho's Mental Health and Substance Abuse Delivery System for Children and Adolescents: Implications for Improvement
Location: Centennial

Over the past two decades, Idaho has consistently ranked among the lowest in the nation for youth mental health outcomes, ranking last in 2022 (BCIF, 2024). Recent research highlights significant unmet needs and service gaps in youth mental health and substance abuse care across the state. This study is intended to explore key stakeholders' perspectives, including the perspectives of mental health providers, educators, nonprofit staff, and policy advocates, on the current state of youth mental health resources in Idaho. By centering the voices of professionals directly involved in service delivery and advocacy, this research seeks to generate actionable insights around the themes of awareness, access, and effectiveness. Findings aim to inform policy recommendations, guide resource allocation, and support the development of more equitable and responsive youth mental health systems. Ultimately, this work contributes to broader efforts to strengthen mental health infrastructure in Idaho's rural and underserved communities.

MONTOYA PHIPPS-GALLEGOS
Boise State University
Online Interactions & Men's Well-Being
Location: Centennial

Research suggests online interactions can provide men with social support and friendship satisfaction comparable to offline relationships. However, the nuanced relationship between online social connection and men's mental well-being remains unclear. While Best, Taylor, and Manktelow found a statistically significant association between online friends and mental well-being, the effect size was small. This, coupled with a lack of qualitative research exploring the "why" and "how", necessitates further investigation. This study aims to explore how online social interactions influence men's perceived mental well-being. It hypothesizes that men actively engaging in meaningful online interactions, characterized by self-disclosure, emotional support, and shared interests, will report higher levels of well-being, regardless of online friend count. Semi-structured interviews with diverse men will reveal how they experience and benefit from online relationships. Findings may inform interventions supporting men's mental health in the digital age.

SAMANTHA ROJAS ROSALES
Rider University
Loneliness and Isolation: A Look Into Middle Childhood and Adolescence Social Connections
Location: Centennial

Personal and overall wellness, safety in communities, endurance, and wealth are all significantly influenced by social connection. Disruption or imbalances in these aspects of life can be detrimental to mental and physical health. Loneliness and social isolation are sometimes seen as separate conditions; each of them indicates a lack of interaction with others, and the signs and outcomes differ depending on the age category. Despite their important ramifications, it is still difficult to fully comprehend how these variables affect middle childhood and adolescence in particular. The purpose of this study is to understand and examine the impacts of loneliness and isolation on individuals throughout the crucial phases of middle childhood and adolescence (6-18 years old). Through a thorough literature review, this study will pinpoint the main causes of loneliness and isolation, examine the various ways they present over age groups, and investigate both the immediate and long-term effects of these conditions. Additionally, we will be surveying the youth to gain insight about their individual social connections, such as their assessed level of extroversion, frequency of interactions, and people they trust. We hypothesize that among these age groups, different degrees of interpersonal connection will be substantially associated with mental health results, academic achievement, and riskier conduct. This research is essential as it will guide the placement of resources and focused treatments, promoting healthy social growth and enhancing youths' overall wellness while emphasizing the urgent need for further research in this underrepresented field.

TYSON POPE
St. Olaf College
Communication of Stereotypes
Location: Centennial

Psycholinguistic research has examined interactions between accent and race concerning hireability in the United States. However, the majority of studies only use male speakers, leaving out an important demographic. Women have been neglected. Our study examines how the intersection of gender, race, and accent influences stereotypic measures (i.e, competence, warmth) and hireability. Participants in an online sample viewed photographs and listened to audio clips presumably taken from four speakers, balanced between gender (woman or man), race (Asian or White), and accent (Standard American English [SAE] or non-standard). Given negative stereotypes about non-prototypical individuals in the workplace, we predict that gender, race, and accent will interact to influence hireability ratings, such that Asian women with a non-standard accent will be evaluated as lower in competence, warmth, and hireability compared to all other speakers. This prediction will be explained by the degree to which participants rate Asians in prototypicality, threat to the ingroup, and the level of participants' prior accent exposure. This study aims to highlight the influence of identity intersectionality on hireability.

ASTASIA CLAYBORNE
The Chicago School
The Impact of Caregiver Anxiety on Early Applied Behavior Analysis Intervention for Children with Autism Spectrum Disorder
Location: Centennial

Caregivers of young children diagnosed with Autism Spectrum Disorder (ASD) often experience elevated psychological distress, with anxiety being one of the most prevalent and disruptive symptoms. This proposed study aims to examine the impact of caregiver anxiety on the effectiveness of early Applied Behavior Analysis (ABA) therapy in children aged 3 to 5. While ABA is a widely supported intervention for behavioral, social, and communication development, its success often depends on caregiver consistency, emotional availability, and engagement. Using a convergent mixed-methods design, the study will gather quantitative data from anxiety-related items in the Parenting Stress Index–Short Form (PSI-SF) and qualitative data from semi-structured caregiver interviews. Findings from this study are expected to inform the development of caregiver-focused supports, such as Acceptance and Commitment Therapy (ACT), to improve both caregiver well-being and child therapy outcomes in early ABA interventions.

NATALIA RODRIGUEZ MARTINEZ
University of California, Santa Barbara
Cultural Factors Contributing to Help-Seeking in Parent-Child Interaction Therapy Within Latino Immigrant Families
Location: Centennial

This study asks why Latino immigrants are less likely to seek mental health services, compares caregivers' attitudes, and explores potentials of Parent-Child Interaction Therapy (PCIT). Mascayano argues that specific Latinoamerican cultural factors be analyzed through public stigma, self stigma, and family stigma. Latin American studies have shown colonialism and stigma as permeating Latino culture. Mascayano's framework is thus productive for understanding US immigrants. The study measured religiosity, social values, immigration status effects, self stigma, public stigma, family stigma, and help-seeking levels. within 74 participants with the use of the Latino Spiritual Perspectives Scale, Latino/a Values Scale, and Perceived Immigration Policy Effects Scale, a knowledge check, an original video filmed for the purposes of informing the viewer about PCIT, and the Parental Attitudes Toward Psychological Services Inventory Adapted for PCIT. Results found that after watching the video about PCIT, help-seeking intentions was a significant positive predictor of help-seeking attitudes. Familismo was also found to be a significant positive predictor of help-seeking attitudes while stigmatization was a significant positive predictor of help-seeking intentions. None of the cultural factors had a significant effect on general help-seeking towards PCIT. There was no discernable difference found between men and women. These results could be because of the smaller participant pool. With all that in mind, the goal with understanding cultural obstacles to PCIT is to hopefully help make mental health services for Latino immigrant families accessible by outlining the importance of centering family in strategies for improving behaviors and mental health.

BREEANNA PERNAS
University of California, Santa Barbara
Mental Health Providers' Perspectives on Involuntary Psychiatric Commitments
Location: Centennial

Mental health professionals are shown to have varied perspectives on involuntary treatment. Some may believe it can have a positive impact, while some critique its coerciveness (Canvin et al., 2014). Involuntary treatment poses a challenge to mental health professionals to reconcile therapeutic relationships with patients put into coercive care (Wyder, Bland, Blythe, Matarasso, & Crompton, 2015). There is limited research on mental health provider perspectives on involuntary psychiatric commitment as well as on the effectiveness of coercive treatment in general. This exploratory study will address mental health providers' perspectives on involuntary psychiatric care for their patients and how mandatory reporting of patients to involuntary psychiatric care impacts the mental health providers' well-being. This will be a qualitative process of interviewing mental health providers who have mandatorily reported patients to involuntary psychiatric commitment. This study utilizes an interpretive phenomenological analysis framework that aims to understand how people make sense of an experience. Studying the perspectives of mental health providers on involuntary care may give awareness to racial and socioeconomic disparities in treatment. The purpose of this study is to understand the role involuntary psychiatric commitment plays in different mental health providers' treatment in order to inform potential alternatives practices to supporting people in mental health crises.

LUCIA DIAZ
University of Texas at Austin
Perceptual Encoding of Voicing Cues During Speech Perception
Location: Centennial

This paper investigates the relationship between two acoustic voicing cues, voice onset time (VOT) and fundamental frequency (f0), during early speech perception. Previous research shows evidence of how listeners encode tones in the auditory N100. However, little is known about perceptual encoding of American-English words using electroencephalogram (EEG) technology. In the current study, we ask how differences in VOT and F0 appear in the amplitude of the auditory N100 ERP by altering stimuli with 7 VOT steps, 3 f0 steps, and 3 word pairs. Participants were given headphones to hear stimuli sounds. They then saw a bar on the computer screen with a word on each end. Subjects were instructed to indicate where they thought the sound fell between two endpoints by using the bar as a scale. We find that the mean N1 data mirrors the behavioral results, the VOT encoding effect is significant, and the VOT/f0 interaction is significant. There are differences in the N1 as a function of f0 at the voiced end of the continuum, but not at the voiceless end. These results support the idea that listeners integrate the two cues early across a range of phonetic contrasts in speech.

GUILLERMO ARELLANO
Wesleyan University
Amplifying Immigrant Voices to Improve Healthcare Access and Quality
Location: Centennial

Undocumented immigrants in the United States face significant barriers to healthcare access. Including being excluded from the Affordable Care Act, Medicaid, Medicare, and the Child Health Insurance Program. Some states have expanded Medicaid eligibility to undocumented individuals such as Connecticut's HUSKY program. However, little is known about how immigrant communities understand and access these healthcare expansions. Using participatory research methods and liberation psychology frameworks, this study conducted four focus groups in three languages (Spanish, Arabic, and English) with 15 participants from diverse immigrant communities in Connecticut between November 2023 and February 2024. Participants were recruited through community partnerships and included individuals of mixed immigration statuses, 0.73 female, majority earning less than 25,000 dollars annually, 0.80 having children, and 0.67 unregistered with HUSKY. A thematic analysis was conducted on transcribed and translated focus group data. From which, participants identified multiple barriers beyond healthcare access expansion, including language barriers, discrimination, financial concerns, and lack of culturally competent care. Along with that, community organizations emerged as crucial sources for healthcare information dissemination, with participants reporting that healthcare providers often were not aware of available resources and programs. Findings suggest that more is required than expanding healthcare access. As without addressing broader systemic barriers including cultural competency, language accessibility, and provider education. This study highlights the crucial role community organizations play in bridging information gaps, and advocates for more comprehensive approaches to improving immigrant healthcare access that address both structural and cultural barriers to care.

July 30, 2025 - 1:30 PM - Poster Session 5: Sociology and Public Affairs

EVAN HO
University of California, Santa Barbara
Floods of Change: Analyzing the Efficacy of Public Participation Towards the River Chief System in Guangdong Province
Location: Centennial

The River Chief System (RCS) is a measurement that the Chinese government uses to track pollution practices and implement sustainable water system management. It was implemented nationally by June 2018 in all 31 provinces, autonomous regions, and municipalities (Wu et al 2020, Yang et al 2024), modeling after the success of Jiangsu province's Wuxi City dealing with cyanobacteria outbreaks and subsequent water pollution in 2007. The system provides provincial and local officials with the position of River Chief to manage the implementation of the central government's policy objectives across organization, management, and protection of their assigned bodies of water. Its implementation into Guangdong province, a leading hub of technological activity, manufacturing, and R&D initiatives, poses questions about environmental concerns in China's most populous province. I examine how both public participation and grassroots movements are utilized to better the RCS in Guangdong throughout 2018-2025. Current scholarship focuses on public participation upon the RCS as a whole, rather than specifically addressing Guangdong. I examine the effectiveness of the RCS through empirical data recently collected by scholars (W. Li et al 2021, Z. Li et al 2021, Ling et al 2022, Yang et al 2024). I analyze online forums to evaluate how public participation and grassroots activism currently influences the RCS. I propose additional interventions to maximize the efficiency of the RCS in Guangdong. Improving upon systems of participatory governance increases the efficacy of the government to construct sustainable water policy, thereby enhancing the wellbeing of the environments and individuals affected.

MELVA CASTELLANOS
University of California, Santa Barbara
Senderos de las Justicias Indígenas en México / Pathways of Indigenous Justice(s) in Mexico
Location: Centennial

Many Indigenous communities in Mexico are communities with Legal Pluralism, meaning that they have two systems they use to resolve conflicts. Under the system of Legal Pluralism, these communities utilize Mexico's State legal system and their normative system of usos y costumbres. This qualitative study will explore the representation and participation of women in the Indigenous systems of conflict resolution. It is possible that there is a lack of participation and representation of women in some of these communities due to various reasons. There is also a possibility of conflict between the traditional structures of the communities' normative system and the state's pressure for gender equity. Through the use of in-depth interviews, ethnographic observations, and focus groups, we will talk to various authority figures, women, and community members from nine different agencias or communities in Santa Maria Yucuhiti, Oaxaca. Understanding the dynamics between the two systems could help explain what barriers women face when deciding whether to participate. Results and findings could also influence and encourage these two systems to create ways for women to participate, encouraging collaboration between the two systems.

JOHNETTE NAGBE
University of Minnesota - Morris
Practical Authentication in Software Design: Exploring OAuth 2.0 and Alternatives
Location: Centennial

This research delves into the critical and evolving domain of authentication and authorization within modern web applications, with a concentrated focus on Google's implementation of OAuth 2.0. The study thoroughly examines the foundational principles underpinning OAuth 2.0, including its innovative delegated authorization model that empowers users to grant limited access to their resources without sharing sensitive credentials. We explore the pivotal role of "scopes" in enforcing the principle of least privilege, allowing for granular control over permissions. Furthermore, the investigation meticulously details the operational processes of Google's OAuth 2.0, emphasizing crucial security measures such as the stringent validation of redirection URIs, the necessity of secure server-to-server token exchange, and the vital function of Proof Key for Code Exchange (PKCE) for public clients. This analysis highlights the substantial advantages offered by this robust framework, including enhanced security through meticulously managed token lifecycles and comprehensive revocation mechanisms, alongside significant improvements in user experience, particularly through seamless Single Sign-On facilitated by OpenID Connect. Concurrently, the research addresses the inherent drawbacks, encompassing implementation complexities, the inevitable reliance on a central third-party identity provider, and various persistent security nuances. The study also expands to briefly compare OAuth 2.0 with alternative authentication methods, such as traditional email-based systems, contrasting their respective benefits and limitations. A core objective of this research is to explore how the practical integration of Google's OAuth 2.0 can be effectively designed and implemented within a software design curriculum. By synthesizing existing literature and proposing pedagogical strategies, this study aims to offer valuable insights for both bolstering web application security practices and enriching educational approaches to teaching these fundamental principles for contemporary software development.

NINA JONES
University of Wisconsin - Whitewater
Opportunity Starts Early: The Impact Pre- College Initiatives Have on High Schoolers
Location: Centennial

As a freshman in high school, many people already considered either dropping out or knew right then and there that going back to school after graduation was already a ‘no’. A term called “Senioritis.” So now imagine those same students as Juniors and it’s time for college application season. More and more students have a negative outlook on education after graduating high school. Mainly from COVID, lack of funds, no direct career plan, family dynamics, and more. Knowing that, a gap in this research can be on what form of Pre- College Program versus programs that encourage Career Exploration. Another gap is the lack of research surrounding the long-term effects of Pre-College in High Schoolers. Having research that shows the health/mental well-being of the students and the educational attitudes after participating in Pre-College Programs is important. Using a mixed-method approach, the data will gather data on the students who participated in Pre-College Programs and match those who participated with other alternatives like career-focused after high school. It is anticipated that the data will show that students who used Pre-College Programs will report a more positive outlook on further education than compared to students who chose a more career-oriented field and not college. Though both may have a positive opinion, utilizing Pre-College Programs is expected to have a higher percentage of success. The hope then is that these findings will help a Social Worker, like me, and policymakers create more support that helps high schoolers transition from high school to college and beyond making sure to mentally support them and their endeavors.

ELIZABETH RICO
Loyola Marymount University
Latino Workers and the LA Wildfires: Experiences, Perceptions, and the Road to Recovery
Location: Centennial

The recent LA fires have disproportionately impacted Latino workers. According to a recent study by the Latino Politics and Policy Institute and the Center for Neighborhood Knowledge at UCLA, at least 36% of all workers in all the affected perimeters identified as Latino. Latinos are overrepresented in labor jobs that require physical presence and physical work rather than remote work. The majority of Latino workers in these areas are self-employed, such as housekeepers, maids, and gardeners, and lack protections such as paid leave, sick leave, and unemployment benefits. This research project explores the impact of the LA wildfires on Latino workers. My study captures the perceptions and personal stories of Latinos through the use of scholarly literature and news articles, and interviews with Latino workers. I have identified three themes, which are 1) loss of stable work 2) increased financial precarity, and 3) concern over short and long-term health risks due to exposure to hazardous fire debris. For example, many workers have lost work in the burn zones, resulting in minimized income, leading to struggles to make ends meet. The fires have also been hazardous to the health of Latino workers because, in some cases, they had to return to the affected areas to help with cleanup efforts and were not provided with proper masks or other protective gear. This study is important because it will help us better understand how the historic wildfires have impacted some of Los Angeles’ most vulnerable populations.

July 30, 2025 - 1:30 PM - Sociology and Public Affairs Breakout VIII: Panel E

SOPHIA GONZÁLEZ
St. Olaf College
Ibsen and Kierkegaard: Norwegian Beginnings of the Kierkegaard Library
Location: Discovery

This research examines how the connection between the Danish philosopher Soren Kierkegaard and the Norwegian playwright Henrik Ibsen spurred the establishment of the Hong Kierkegaard Library at St. Olaf College. The examination was conducted through the lens of founders Howard and Edna Hong and included interviews of the Hong family and colleagues, an investigation into the establishment of the library, and an analysis of the Kierkegaard and Ibsen texts crucial to the Hongs. Findings indicated that after encountering Ibsen's puzzle of redemption (as dramatized in Peer Gynt and Brand), the Hongs turned to Kierkegaard's philosophy for answers, eventually finding them in Works of Love. Works of Love, in turn, motivated them to establish the world-renowned library and thus "love forth love".

KATIA RIVERA
St. Edward's University
Designed to Influence: A Discourse Analysis into El Salvador's New National Library
Location: Discovery

More than a building, the National Library of El Salvador—la Biblioteca Nacional de El Salvador (BINAES)—serves as a space where national identity, international partnership, and public memory converge. As Norman Cousins once noted, "A library is the delivery room for the birth of ideas." In the case of BINAES, it is also a site where narratives are shaped—about who a nation is, what it values, and how it sees its future. This study draws on historian Pierre Nora's concept of lieux de memoire—sites where memory is no longer transmitted organically, but instead constructed and curated through space, symbolism, and design. BINAES was built with $54 million in funding from the People's Republic of China and designed in the shape of an open book. To examine the narratives surrounding BINAES, this research applies discursive analysis to 30 national and international headlines published between 2021 and 2025. These were coded across eight dimensions: donor visibility, state authorship, spectacle, knowledge access, public voice, historical framing, and critical perspective. Preliminary findings indicate a dominant focus on architectural innovation, digital promise, and international goodwill—particularly emphasizing China's role as benefactor. While official narratives are prominently featured, there remains space for more inclusive coverage that reflects diverse community voices.

SARAH PHILLIPS
Westminster University
The Impact of HB 261 on Utah College Students' Sense of Belonging and Community.
Location: Discovery

In July 2024, the Utah government bill titled HB 261 took effect. The bill makes it illegal for public institutions to provide programs and initiatives that create differential treatment based on a person's identity traits. Many people have described the bill as inherently anti-DEI (Diversity, Equity, and Inclusion) and as heavily impacting public universities and colleges in Utah. Previous research has noted that tensions have arisen in the DEI space, as the two political parties hold opposing views on whether DEI's impact is beneficial or discriminatory. However, as most research regarding this topic has focused on the impact of employees and college faculty, it is essential to reconsider the conversation around how these laws impact students as well. With anti-DEI attitudes becoming more common, it is important to see how students are processing these shifts and how it influences their identity and communities in college. Qualitative interviews will be conducted with university students in Utah to gain deeper insights into how HB 261 and the overall political climate regarding DEI have impacted their lives and experiences in higher education. Common themes will be pulled from the data that is based on their transcripts. The results of this study can provide insight into how HB 261, a year after its initiation, has changed the landscape of public higher education in Utah. The study may also reveal any gaps in addressing accessibility and discrimination that current legislation has and help future legislation better meet the needs of students in higher education.

LAURA ESPINOZA
University of California, Los Angeles
English Success Rates Under AB 705/1705: The Bill's Influence on the Experience of Los Angeles City College Black and Latine Students & Professors
Location: Discovery

According to data published by the California Community Colleges Chancellor's Office (2025), 1-year completion rates in college-level English courses for Black and Latine students at Los Angeles City College have declined since the passage of AB 705/1705 in 2017. The bill dismantled placement testing and remedial courses throughout California community colleges, forcing unprepared students into college-level courses, accelerating their learning experience. Although data shows that the Los Angeles area community colleges report the largest ethnic gap in college-level completion rates throughout California, linked to the acceleration mandate, focused attention is lacking in the region. For this reason, my research examines the influence of AB 705/1705 on the educational experiences of Black and Latine students attending LACC. In addition, through this study, I seek to understand how LACC professors make meaning of the bill as they work with Black and Latine students.

July 30, 2025 - 2:45 PM - Communication, Economics, and Geography Breakout IX: Panel A

AARON MAGEE
Loyola Marymount University
Creative Expansion to Architecture
Location: Pinnacle

The creative expansion of architecture is an inquiry based on three primary research questions. For my research, those are defined as 1) what can facilitate architecture to creatively expand in today's world? 2) what techniques or programs can be utilized to fulfill this? and 3) how can architects benefit from this creative expansion? This research was conducted in order to find the intersectionality between my current practice, as an animation student and fine artist, and the field of architecture that I will study post undergrad. To obtain my results, I consulted industry sources and scholarly articles. This research showed that through the work of Radical Galaxy Studios, as well as the experiences of medical students, VR/virtual reality is a pivotal step towards creatively expanding modern architecture. Using real time spatial rendering, VR offers compelling user interactivity that is underutilized by many architects. For instance, Unreal Engine's powerful and efficient architectural visualizations are mostly only used for games and entertainment. This program also grants aspects of sound, texture, color, and animation which would be enticing to purchasing clientele. The significance of this research would offer a practical appeal in today's technology-driven world, as well as provide architecture firms with more creative and dynamic models to showcase in-progress work to their clients, as well as provide architecture students with hands-on interactive experience during their education.

JACOB GONET
University of Oregon
Quantum Communication Security Technology
Location: Pinnacle

This presentation explores quantum secure communication technology, a critical advancement for protecting data in the era of quantum computing. The study addresses the vulnerability of classical encryption methods to quantum attacks, aiming to develop a secure quantum key distribution system. The research offers a significant step toward quantum-resistant communication, with applications in secure government and financial transactions. The technology could revolutionize cybersecurity by providing unbreakable encryption, addressing a pressing need in the digital age. Future work will focus on integrating this system with existing infrastructure and testing under real-world conditions to enhance practical deployment.

LAURA CHAVEZ
Augsburg University
Drivers of Service Sector Growth in Developing Economies: An Analytical Study.
Location: Pinnacle

The service sector has experienced a noticeable growth in the global economy, particularly in developing countries. Yet, there has been a limited analysis of the different sources of the service sector growth across regions within developing countries. This paper analyzes and identifies not only the drivers of the service sector growth, but also the heterogeneity of those drivers across different regions in developing economies. In addition to analyzing the service sector growth, we analyze whether this growth is accompanied by a declining manufacturing sector as predicted by economic growth theories. Using the World Bank Data over the period 2000 – 2023 for 70 developing countries, we employ the pseudo-panel data analysis to identify the key macro and institutional factors that drive the service sector growth. We expect these factors to have heterogeneous effects across different regions and different time-periods.

LYNSEY SMITH
Truman State University
AI at the Ledger: Technology Readiness and Perspectives on AI Integration in Accounting
Location: Pinnacle

The integration of artificial intelligence (AI) into the accounting field could have revolutionary effects on the entire field, ranging more individuals not accounting firms to from the replacing of humans at accounting firms as well as the fluidity of technology readiness. Previous research has demonstrated that AI systems have provided the opportunity for enhancement in efficiency, accuracy, and fraud detection. Additionally, studies have also shown that there is a link between technology readiness (TR) and the adoption of AI. Furthermore, studies have suggested that skill requirements and professional roles will change with more integration of AI systems into accounting. Previous studies have focused the use of AI in accounting only within smaller countries around the world, rather than larger countries like the United States of America. This study proposes interviewing accounting professionals in the Mid-West to gain knowledge on how accountants and auditors perceive the integration of AI in their profession. It will also study how AI has affected jobs and positions within their field.

July 30, 2025 - 2:45 PM - Humanities Breakout IX: Panel E

MICHAEL CORONA
University of California, Riverside
Framing Chicanx Youth: The Power of Representation in Popular Media
Location: Odyssey

Mainstream media often reinforces stereotypes or excludes minority communities altogether. Scholars like Chon Noriega, Rosalinda Fregoso, and Ed Guerrero have examined how misrepresentation in the media reinforces hierarchies and limits cultural visibility. This research project explores how positive media representation can empower marginalized youth, focusing on how Chicanx subjectivity is formed and contested. This research paper draws on Dr. Renee Hudson's work on the complexity of Latinx futurity and identity, emphasizing the empowering potential of positive portrayals in the 1997 film Selena (dir. Gregory Nava) and selected songs by Mexican American artist Becky G through Gloria Anzaldúa's Borderlands/La Frontera. In particular, I argue that Anzaldúa's theorizing of the mestiza consciousness has not only impacted how we think of Chicanx identities but also helps to unpack how positive representations of historically underrepresented communities offer complex bicultural imaginaries of being and belonging that resonate with youth from those communities. By analyzing cultural production as a form of resistance, visibility, and healing, and identifying recurring messages of cultural pride and identity negotiating within film scenes, lyrics, and visuals, this research contributes to media and identity studies by emphasizing the power of seeing oneself reflected in authentic and multidimensional ways.

VALERIE HERNANDEZ-NIEBLAS
Loyola Marymount University
Latin Music, Resistance, and Contemporary Popular Culture
Location: Odyssey

My presentation focuses on my various contributions to ongoing Latin music research by Dr. Vanessa Díaz (LMU) and Dr. Petra Rivera-Rideau (Wellesley College) during my tenure as a McNair scholar. My responsibilities ranged from assisting with the promotional plan for a forthcoming co-authored book, blending a narrative and systematic literature review focused on the contemporary rise of Latin Music, utilizing translanguaging to review and pull original Spanish and Spanglish quotes from interviewees in the book, and lastly, annotating translations of lyrics for Bad Bunny Syllabus project, contributing to digital archive and open-access pedagogical tools. Serving as a research assistant helped foster my interest in the influence of pop culture on politics as a Political Science and Sociology double major. This presentation will describe all of this in more depth. The presentation will conclude with a discussion of how my unique areas of knowledge and specialization allowed me to contribute to a diverse range of research components.

ZACHARY GOMEZ
University of California, Los Angeles
In the Fold: Impressions of Incarcerated Chicano Identity
Location: Odyssey

My project analyzes California incarceration in the 1990s to extrapolate manifestations of Chicano identity and a radical agency within prisons. This era is significant because it follows the expansion of the carceral system in California during the 1980s. The 1990s were also a time of increasingly hostile and punitive narratives both in rhetoric and laws that criminalized and punished Black and Brown men. I use a decolonial and critical theoretical lens to look at the material and metaphysical implications that incarceration holds on formations of identity. This is a categorically historical project. By accessing archival sources, and conducting oral interviews, I explore self-expression through writing and art and aim to record a more humanized narration of the prison's effects on senses of self. Finally, I look at the confluence of religious expression through tattoos as forms of empowerment and cultural resistance. My work narrates a history of subversion that demonstrates the agency of non-whites against empire. Additionally, I explore the modality between the manifestation of identity inside the prison and the felt absence of incarcerated people on the outside. My project holds contemporary significance due to sensationalized narratives of growing conservatism among Latinx Americans.

July 30, 2025 - 2:45 PM - Psychology and Cognitive Science Breakout IX: Panel J

ANDREA NAVARRO MACIAS
University of California, Davis
How the Content and Structure of Challenge Narratives Corresponds with Racial/Ethnic Identity
Location: Innovation

Understanding how individuals narrate challenging life experiences is crucial to understanding identity (Bauer et al., 2019). Yet, little research has analyzed how the structure and content of racial/ethnic challenge narratives corresponds with identity. In this study, we quantified the theme of redemption (negative beginnings, positive endings) within racial/ethnic challenge narratives gathered during semi-structured interviews with 176 racially and ethnically diverse young adults in college (M age =20.25, SD =2.88; 103 women, 72 men, 1 non-binary; 68 Asian American, 63 Latine, 24 Multiracial, 16 White, & 5 Black/African American participants). Narratives were also coded for content themes including affective tone and event type (e.g., connection to culture and awareness of difference). Narrative themes were examined in relation to self-reported measures of racial/ethnic identity. Although, there were no correlations between redemption and racial/ethnic identity measures, there were significant associations between content themes and racial/ethnic identity. Positive narratives and narratives describing an awareness of difference corresponded with higher and lower levels of racial/ethnic identity, respectively. There were no significant differences in redemption based on event type. However, Latine participants were more likely than Asian American participants to narrate experiences reflecting awareness of difference from the outgroup. Overall, this study provides insight into the narrative themes that define young adults' challenges around race/ethnicity and their associations with this aspect of identity.

CASSANDRA GARCIA
University of California, Riverside
The Effects of Parental Cultural Socialization on Mexican-American Young Adults' Ethnic Identities
Location: Innovation

Parental guidance extends beyond foundational care, playing a critical role in cultivating understandings of cultural background(s) and ethnic identity in children (Hernandez et al., 2014). The specialized practices, experiences, and values parents use to culturally socialize their children can shape ethnic identities across youth and into adulthood (Desmarais et al., 2024). Limited research has explored the specific cultural socialization practices (e.g., music, food, and language) and parent-child relationships (e.g., closeness) through qualitative documentation. However, more research is needed on understanding how individuals navigate multicultural identities as well as the unique formation and strength of each identity. This study is guided by two research questions RQ1: How is parental cultural socialization related to Mexican and American ethnic pride and identities? RQ2: Do individuals from multicultural backgrounds gravitate towards one cultural identity more than the other? What factors shape individuals' identification with their Mexican and American identities and Why? Study 1 includes a secondary analysis of the ethnic socialization, cultural identity, and Mexican-American ethnic pride measures from the California Families Project (CFP). Study 2 will employ a mixed-methods survey completed by undergraduate students of Mexican and Mexican-American descent from the University of California, Riverside. Study 2 adapts measures from the CFP, and derives qualitative prompts that expand on specific cultural socialization practices and processes that form ethnic identity. This study has the capacity to inform ethnic identity research and increase understanding of the potential lasting effects of childhood cultural socialization into adulthood, and the navigation of multiple cultural identities.

ASHLEY YNGLADA
University of Minnesota - Twin Cities
Social Expectations and Second-Language Speech Perception
Location: Innovation

Speech intelligibility refers to the accuracy with which a person's speech is reported by others. This ability can be heavily influenced by a listener's own perceptions and assumptions based on the speaker's identity. For example, leading someone to believe that they are listening to an East Asian individual results in them reporting different sentences than when they are led to believe the same person is white. Previous studies have explored this phenomenon, although predominantly featuring listeners who were native speakers of English. Our experiment builds on these studies while focusing on the impact racial identity perception may have on listeners who learned English later in life (L2 listeners) compared with native speakers (L1 listeners). The intention of this study is to determine whether the influence of talker's actual or assumed racial identity on speech intelligibility differs between L1 listeners, and L2 listeners. In this experiment, six different individuals (two white, two Latina, and two Black) produced twenty sentences that were presented to three groups of listeners. Ten of these sentences were given with audio only, while the other ten included both audio and visual input. All sentences were presented with background noise, and listeners were tasked with transcribing what they heard. Transcriptions were scored for the accuracy of the response to the actual sentence. The findings of this study will help us understand the nature of racial identity effects in speech intelligibility, and help engage with the community of L2 listeners, which is typically underserved by speech-language pathologists and audiologists.

JULISSA DIAZ GARCIA
University of California, Davis
"Here's a cat, un gato!": Infants' Vocalization Responses to Parents Code-Switching
Location: Innovation

Infants growing up in bilingual environments are often exposed to parent's code-switching language use. Code-switching occurs when speakers switch languages between or during a sentence. Code-switching is a characteristic of Infant Directed Speech (IDS) for bilingual caregivers (Kremin et al., 2022) and it has been shown to be beneficial for language development in infants (Bail et al., 2015). During these conversations, infants partake in turn taking. Research suggests a bidirectional relationship between the development of language skills and the growth of turn-taking abilities (Donnelly & Kidd, 2021). However, there is a lack of research examining how infants partake in turn-taking in bilingual environments. The purpose of this study is to examine bilingual infant vocalizations in response to parents' language use. Spanish-English bilingual mothers and their infants participated in a naturalistic study where they were given toys and were video and audio recorded during play. We analyzed the caregiver's language use in relation to infants' vocalizations. We are interested in investigating the co-occurrence between caregiver's code-switched utterances and infant's responses within turn taking interactions. We predict that infants' vocalizations will increase in response to code-switching, as the change in language may draw greater attention to the utterance during turn-taking instances. However, when examining the frequency of infants' vocalizations in relation to parents' language use, we predict no difference across English or Spanish utterances.

July 30, 2025 - 2:45 PM - Psychology and Cognitive Science Breakout IX: Panel K

BETHSAIDA GARCIA
Augsburg University
P3b Amplitude and History of Multi-Substance Use
Location: Pathways

The P3b is a well-established event-related potential (ERP) linked to higher-order cognitive processes such as attention allocation, information processing, and working memory. Research indicates that reductions in P3b amplitude may serve as a neurophysiological marker for substance use disorder (SUD). This study aims to explore the relationship between P3b amplitude and the variety of substances used across an individual's lifetime among young adults. Specifically, it investigates whether participants who report using a greater number of different substances (i.e., broader history of multi-substance use) display P3b amplitude reduction (P3b-AR) in response to rare, task-relevant stimuli during a rotated heads oddball task. Survey data on lifetime substance use will be analyzed to construct relevant variables and establish comparison groups for EEG analysis. We hypothesize that reduced P3b amplitude will be associated with broader lifetime substance use, indexing elevated risk for addiction. Understanding this relationship may offer valuable insight for early detection and implementing targeted interventions for vulnerable populations, particularly among college-aged young adults.

RYAN APARICIO
St. Edward's University
Performance of Stacked Data Augmentation on Electroencephalograph Data
Location: Pathways

Data augmentation is a critical technique in Deep Learning (DL) for improving model generalization. However, the combined application of multiple augmentation methods remains underexplored in the context of electroencephalogram (EEG) data. This study investigates how various permutations of Gaussian noise, Time Transformation, and synthetic EEG signal generation using Generative Adversarial Networks (GANs) influence EEG model performance. Using the publicly available PhysioNet EEG Motor Movement/Imagery Dataset (EEGMMIDB), which includes 64-channel recordings across three classes from 109 subjects, the EEG signals were preprocessed and subjected to 16 different permutations of the listed augmentation techniques. These augmented datasets were then used to train a neural network classifier, allowing for comparative analysis of model performance across augmentation strategies. This work will show the impact that stacking augmentation methods have on the accuracy and reliability of classifiers trained on EEG data.

ISAIAH ROUFS
Augsburg University
The Moderating Role of MPQ Absorption in Resting-State Alpha EEG Response to Nature and Non-Nature Imagery
Location: Pathways

Attention is a finite cognitive resource, particularly for college students who may be frequently overloaded by competing demands and digital distractions. Since Kaplan proposed Attention Restoration Theory (ART), researchers continue to explore how exposure to natural environments could improve and restore directed attention. More recently, studies have used electroencephalography (EEG) to measure frontal alpha-band EEG – a marker of wakeful relaxation and attentional restoration – to examine how viewing natural stimuli affects this activity. However, individuals may differ in their responsiveness to nature-based stimuli processing due to stable personality traits. One such trait may be Absorption, which is the tendency to become deeply immersed in sensory or imaginative experiences. The current study evaluates whether trait Absorption moderates the effect of image type (nature vs. non-nature) on frontal alpha activity during passive viewing. I hypothesize that: 1) frontal alpha power will be greater when participants view images of nature compared to non-nature images, 2) trait Absorption will be significantly associated with overall frontal alpha power, and 3) Absorption will moderate the relationship between image type and frontal alpha activity.