SEVENTEENTH ANNUAL UNDERGRADUATE RESEARCH SYMPOSIUM

Loyola Marymount University
Office of Research and Creative Arts

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URS 17 Program Cover Artwork
Nicole Hui, BFA ‘26

A Welcome from the Office of Research & Creative Arts

March 21, 2025

Dear LMU Students, Faculty, and Staff,

Welcome to the Seventeenth Annual Undergraduate Research Symposium! This event has been a campus-wide tradition celebrating the very best in faculty-mentored undergraduate research and creative projects at LMU for nearly two decades.

The Symposium is a celebration not only of student research and the fantastic faculty-student partnerships that have come to define an LMU education, but also of a community working together to support and amplify student voices. We come together on our beautiful campus to celebrate Loyola Marymount's unwavering commitment to academic excellence both inside and outside of the classroom. We hope you will engage with the over 100 posters set up throughout University Hall, listen to and participate in the more than 70 oral presentations, panels, and arts showcase presentations, and share a meal or some coffee with friends, family, and fellow presenters.

We are pleased to feature the work of over 200 students from all five undergraduate colleges and schools. The diverse presentations will be intellectually stimulating for all. Among these sessions, students wrestle with issues including the complexities and ethical dilemmas of using AI. They explore various health issues including COVID-19, HIV/AIDS, PCOS, and autoimmune disease. Student discussions range from the militarization of the war on drugs in Latin America, architecture throughout history, Aristotle, and the various impacts of social media. Highlighting the importance and integration of LMU's mission, the CSJ Center for Reconciliation and Justice returns to host its anual Social Justice in Action: Service and Engaged Learning Experiences. Finally, this year we showcase a new collaboration: graphic art designs made by students that reflect the UN Sustainable Development Goals in partnership with the Office of International Programs and Partnerships.

The Undergraduate Research Symposium provides an excellent opportunity for students, faculty, staff, parents, and members of the LMU community to actively engage with students who have been immersed in thought-provoking questions and global issues. In an increasingly complex world, it is important for students to take learning to a deeper and more integrated level. The work showcased today is evidence of this learning process.

Congratulations to this year's presenters and to all the students and faculty participating in the 2025 LMU Undergraduate Research Symposium!

Sincerely,

José Badenes

José Badenes, S.J., Ph.D.
Vice Provost for Academic Programs
Professor of Spanish

Elizabeth Wimberly-Young, M.F.A.
Senior Director,
Research, Access, & Academic Engagement

Carina Flores

Carina Flores, M.Ed.
Associate Director, Office of Research & Creative Arts

Schedule of Events

Friday, March 21, 2025

12:00pm – 3:00pm	**REGISTRATION** University Hall Suite 3000
1:00pm – 2:15pm	**ORAL SESSION I** 2nd & 3rd Floor, University Hall
2:20pm – 3:35pm	**ORAL SESSION II** 1st & 3rd Floor, University Hall
2:30pm – 4:30pm	**BIOLOGY DEPARTMENT ORAL SESSION** Ahmanson Theatre, University Hall
3:40pm – 4:55pm	**ORAL SESSION III** 1st & 3rd Floor, University Hall
4:30pm – 6:00pm	**POSTER SESSION** 1st Floor, University Hall

Complimentary coffee, tea, and water on the first floor by suite Roski's and Ahmanson Theatre
Food available for purchase from the food truck from 12pm - 4pm

Oral & Poster Sessions

SEVENTEENTH ANNUAL UNDERGRADUATE RESEARCH SYMPOSIUM

Loyola Marymount University
Office of Research and Creative Arts

ORAL SESSION I
1:00 pm – 2:15 pm
2nd & 3rd Floor, University Hall

University Hall McIntosh: Advancing Frontiers in Physics: From Fluid Dynamics to Sustainable Applications and Cosmic Phenomena		
Presenters	**Title**	**Advisors**
Quintin Yates	Computational and Experimental Flow Measurement of a Magnetohydrodynamic Fluid Pump.	Emily Hawkins
Owen Daulton	Distribution of G-PCMs Within Roof Insulation for Mediterranean Residential Applications	Emily Hawkins, Mustafa Mozael
Mohammad AlArbash	Experimental Analysis of Flow Surrounding EDNA Collection Devices	Emily Hawkins
Edward Jones	Saltwater Convection Experiments with Applications to Subsurface Oceans on Icy Moons	Emily Hawkins
University Hall 2002: Intersections of Power and Resistance: Exploring Defense, Identity, and Policy in Global and Historical Contexts		
Carrie Knickrehm	Consequences of the Strategic Defense Initiative: Britain and NATO	Nigel Raab
Mariana Barrios	Forgotten Soldiers: Native Americans and the Vietnam War	Nicolas Rosenthal
Hannah Robins	The Intersectionality of Sex Trafficking, Law Enforcement and Legislation: Where Are We Today and Where Do We Need To Go?	Anna Muraco
Brigette Andrade	Say No to Drugs: An Analysis of the Militarization of Anti-Drug Trafficking Policies in Mexico and El Salvador	Jodi Finkel
University Hall 2228: Shaping Identities: Architecture, Artifacts, and Cultural Representation from Chalcolithic Settlements to the Second Sophistic		
Joseph Barragan	Architecture and Lithic Objects in Teleilat Ghassul	Caroline Sauvage
Mary O'Callaghan	Domestic Architecture and Ceramics in the Chalcolithic Southern Levant	Caroline Sauvage
Catarina Dantas	Plutarch's Representation of the Greeks to His Roman Audience in the Second Sophistic	Katerina Zacharia
Tanya Rasheesa	Poetry and Hellenism: Building the Greek Nation Through Rhyme and Verse	Katerina Zacharia

ORAL SESSION I
1:00 pm – 2:15 pm
2nd & 3rd Floor, University Hall

University Hall 3222: Navigating Neurodevelopment		
Mandoline Nguyen	Disruption of the Embryonic Serotonergic System by Psilocin Affects Cranial Neural Crest Derivatives	Max Ezin
Sophia Shoham	Spatiotemporal expression of Serotonin (5-HT) receptor 5-HT2B and Cannabinoid CB1R receptor from gastrulation to neurulation	Max Ezin
University Hall Ahmanson Theatre: Social Justice in Action: Service and Engaged Learning Experiences		
Grace Alcedo, Summer Alexander	A Call to Faith in Action: Ignacio Companions Jamaica	Sr. MaryAnne Huepper
Andrea Payre Madrigal, Victor Caceres	An Encounter with Creation: IC Galapagos	Sr. MaryAnne Huepper
Sophia Rivera, Andrea Felix, Benjamin Serna	Dolores Mission Engaged Learning from THEO 3232 [US Latinx Theology Class]	Sr. MaryAnne Huepper
University Hall 3230: Qualitative Studies of Health, Illness, and the Body		
Ananya Desai	Masala Minds: The Spice of Neurodivergence in Indian Communities	Alexandra Strum
Ava Nariman	Navigating Gastrointestinal Distress Among Undergraduate Students	Negin Ghavami, Rachel Washburn
Hannah Tate	PCOS: A qualitative study on the experiences within the diagnosis and treatment of PCOS	Rachel Washburn
Adeline Ventrone-Ortega	Self Doubt and Self Destructive Immune Systems: Experiences of Women with Autoimmune Disease.	Rachel Washburn

ORAL SESSION II
2:20 pm – 3:35 pm
1st & 3rd Floor, University Hall

University Hall 1218: Crafting Time, Fear, and Spirit: Exploring Societal Reflections and Technological Transformations in Media and Performance		
Presenters	**Title**	**Advisors**
Josephine Spanier	The Design of Time: Envisioning the Future through Science Fiction Production Design in the Alien Franchise	Charles Howard
Madeleine Gault	Evolving Terrors: How The American Horror Genre Mirrors Societal Change and Audience Anxieties.	Anupama Prabhala
Nicole Li	Ghosts on Stage: Bridging Cultural Realms in Theatre through The Haunting of Hannon XII	Kevin Wetmore, Yanjie Wang
Alexander Selby-Lara	Robotic Rhythm: A Contemporary Look At AI-Driven Editing Tools' Efficacy in Understanding and Replicating Human Rhythmic Editing Techniques.	Charles Howard
Lauryn Tolliver	Shawty's Fire: A Content Analysis and Theory on The Hypersexualiztion of Black Women Within Contemporary Film	Julia Lee
University Hall 1402: Identity, Neurodivergence, and the Digital Mirror: Unveiling Culture and Perception		
Alex Raji	An Ethnography: Through The Lens of Filipino Identity	Todd Martinez
Dayja Hernandez-Brown, Camilla Davis, Chloe Lee	Social Media's Role in Shaping Self-Perception: The Conceptualization of Inspiration vs Curated Content	Todd Martinez
Danny Halle	Va'a & Vessel: Clay as a Medium of Oceanic Identity	Luciano Pimienta
University Hall 1403: Bridging Gaps and Building Resilience: Economic and Social Dynamics Across Borders		
Rebeca Perez	An Analysis on Pay Gaps for Latin American Immigrants in the United States	Jain Prachi
Karen Medrano Gonzalez	California Drought within the Strawberry Market	Inas Kelly
Elisabeth Zygmunt	From Poolside to Profit Margins: A Deep Dive into Playa Hotels & Resorts	Hai Tran
Patrick Panko	Shocks and Risk Tolerance: Understanding The Behavior of Kenyan Small Businesses After a Setback	Jain Prachi

ORAL SESSION II
2:20 pm – 3:35 pm
1st & 3rd Floor, University Hall

University Hall 3222: Shifting Landscapes: Anxiety, Identity, and Knowledge in Modern Democracy		
Owen Saranecki	How Does Rural Anxiety Affect Voting?	Adam Thal
Maya King	The Margins of the Manosphere	Christopher Finlay
Farrah Padilla	A New Fourth Estate?: How Different Forms of News Consumption Affects Political Knowledge	Chaya Crowder, Nathan Chan
Mariana Barrios	Racial Threat, Diversity in Government, and Democracy	Nathan Chan
University Hall 3226: Human Perception and Decision Dynamics: From Gaming Transferability to Fear-Induced Distortions		
Collin Griffin	Cognitive Load and Decision Making	Chela Willey
David Williams	Exploring the Limits of Transferability of PC and VR Gaming Skills to Real-World Tasks	Chela Willey
Alexa Sokolove	Subjective Vertical and Distance Estimation with Fear of Falling	Chela Willey
Charles Jenkins	Tilt Biases and Subjective Vertical	Chela Willey

BIOLOGY ORAL SESSION
2:30 pm – 4:30 pm
Ahmanson Theatre, University Hall

Presenters	Title	Advisors
Frances Dygean	An Investigation into the relationship between testosterone and nest defense in Great Black-backed Gulls (Larus marinus) throughout the breeding season	Kristen Covino
Shreshta Kode, Sophie Menendez	Loss of the Saccharomyces cerevisiae [2Fe-2S] mitochondrial protein Aim32 leads to unbalanced protein synthesis	Deepa Dabir
Ryan Seifi	*Limonium perezii*: a model system for investigating foliar water uptake	Philippa Drennan
Sophie Henkenmeier	The Ecological Impact of Silvetia compressa on Biodiversity in Intertidal Ecosystems: A Survey of Bluff Cove Beach	Sarah Bittick
Sabriya Seid	WebMD: Diagnosing LMU's Biodiversity Using Environmental DNA (eDNA) from Spiderwebs	Demian Willette
Perla Rand	Gastrulation in the Trachemys scripta Turtle	Max Ezin
Isabelle Bermudez, Atrina Bonihe	Xanthan Gum and Microbacterium sp. Enhance California Native Plant Germination Under Drought Stress	Michelle Lum
Josiah Dallmer, Paola Lopez de Cardenas	PIT WEAR AND TEAR PART 2: INCLUDING TAPHONOMY IN OLDER DEPOSITS AT RANCHO LA BREA TAR PITS	Wendy Binder

ORAL SESSION III
3:40 pm – 4:55 pm
1st & 3rd Floor, University Hall

University Hall McIntosh: Exploring Quantum and Gravitational Frontiers: Quasi-Normal Modes, Generalized Uncertainty Principle, and Educational Perspectives		
Presenters	**Title**	**Advisors**
Nicolas Salkin	Calculating Quasi-Normal Modes of Extended Uncertainty Principle Black Holes	Jonas Mureika
Dylan Tang	A Comparison of Textbooks' Problem-Solving Presentations	Jeff Phillips, Michael Noltemeyer
Weston LaRhette	Generalized Uncertainty Principle effects on Self-gravitating Quantum systems and Gravitational Decoherence models	Jonas Mureika
Ava Hoeger	Quasi-Normal Modes of Extended Uncertainty Principle Kerr Black Holes	Jonas Mureika
University Hall 1402: Expanding Perspectives: Navigating Relationship Dynamics, Identity Power, and Growth Mindset in Modern Media and Culture		
Lyla Bollag	Beyond the Monogamous Landscape of Practically, Psychologically, and Personally Fulfilling Relationships: Considering Consensual Non-Monogamy	Clinton Carl, Jordan Freitas
Emery Markey	Identity as Status in the Entertainment Industry through Contemporary Documentary Media	Anupama Prabhala
Alexandra Thompson	A Journey of Stardom to Self-Discovery: An Analysis of How Gwyneth Paltrow Exemplifies a Growth Mindset	Clinton Carl
University Hall 1404: Voices and Vulnerabilities: Exploring Rhetoric, Disparities, and the Complexities of Identity in Diverse Communities		
Pablo Anleu Calvo	Latinos & Rhetoric: Unraveling the Diverse Reactions to Xenophobia	Richard Fox, Nathan Chan
Jaida Andrews	Statistical Analysis for the California Reducing Disparities Project	Ben Fitzpatrick
Seema Kayali	The Impact of Religious Affiliation and Discrimination Experiences on Arab American Integration and Foreign Policy Attitudes	Kerstin Fisk
Luke Roshkow	Where Good Republicans No Longer Go to Die: The Changing Character of Suburban Politics	Michael Genovese

ORAL SESSION III
3:40 pm – 4:55 pm
1st & 3rd Floor, University Hall

University Hall 1858: Exploring Boundaries: AI, Moral Philosophy, Reasonable Nonbelief, and Socio-Economic Constructs of Identity		
Kaitlin Pintens	Artificial Intelligence, Sentience, and Moral Status	Alexander Zambrano
Brandon Ridgeway	Pascalian Divine Hiddenness: Resisting Schellenberg's Reasonable Nonbelief	Daniel Speak
Hayden Johnson	Straightness as a Claim to Socio-Economic Power	Alex Diones
Luke Antaky	The Death of the Architect: How Artistic and Subversive Movements Reflect Power Dynamics in Urban Spaces	Alexander Diones
University Hall 1866: Strategic Fault Lines and Collaborations: Navigating Foreign Policy, Coalitional Dynamics, and the Legacy of Partitioned States		
Alexander Kane	American Foreign Policy Decision Making Through the Lens of the Iran Nuclear Deal: Political Actors and Bureaucrats	Christopher Jackson
Elyssa Watson	Building Bridges to Liberation: An Analysis of Coalitional Processes	Meng Li
Christopher Kramer	A Long-Term Assessment of Partitioned States	Christopher Jackson
University Hall 3230: Human Bonds and Conditions: Insights on Friendship, Selfhood, and the Role of Money		
Lauren Acevedo	The Aristotelian Use of Pleasure in Recognizing the Dissolution of a Friendship	Erin Stackle
Louis Yanucci	Becoming Closer: Answering the Question of Other-self-ness in Aristotle	Erin Stackle
Tyler Matsumoto	Money as a Precondition of Being Human	Erin Stackle
University Hall 3304: Global Health Perspectives: Investigating the Intersections of HIV/AIDS Prevalence, COVID-19 Impact, Institutional Roles, and Reproductive Health Access Across Regions and Eras		
Kanna Parker	Country-Level Analysis of the Effect of Medical Equipment on HIV/AIDS Prevalence and Global Health Security	Inas Kelly
Kelsey Armstrong	Recency of COVID-19 is Associated with Higher Perceived Workload on Neuropsychological Assessments	David Hardy

ORAL SESSION III
3:40 pm – 4:55 pm
1st & 3rd Floor, University Hall

Clare Donahue	The Role of Institutional Expenditures and Prevalence of HIV in Sub-Saharan Africa	Inas Kelly
Mary O'Callaghan	"Woman, the Physician": Women's Access to Reproductive Health Information and Its Censorship in Britain and the United States, 1826–1895	Carla Bittel

POSTER SESSION
4:30 pm – 6:00 pm
1st Floor, University Hall

ARTS | MEDIA | COMMUNICATIONS		
Presenters	Title	Advisors
Emma Zuniga	Balancing Employee Voice, Coaching, and Termination: An Ignatian Lens on Managing with Respect and Dignity	Patricia Martinez
Esmeralda Hernandez	Dual Identities, Shared Struggles: The Effects of Mother-Daughter Relationships in Immigrant Families	Meng Li
Tanya Rasheesa	Memories of the Holocaust in Jewish-Greek Poetry	Holli Levitsky

HUMANITIES | SOCIAL JUSTICE		
Presenters	Title	Advisors
Yotanna Ikenna-Obioha	Black Maternal Health Experiences and Disparities	Rachel Washburn
Sarah Omachi	Effects of Social Exclusion and Negative Academic Feedback on Academic Self-Efficacy	Timothy Williamson
Marissa Cueva	The Eldest Latina Daughter Identity	Juan Mah y Busch, Priscilla Leiva
Yotanna Ikenna-Obioha	How Does Chronic Illness Impact Personal Identity, Relationships, and Social Roles?	Inas Kelly
Laura Haushalter	"Man-Dig those crazy Los Angeles Freeways": The changing image of Southern California Freeways in The Werner von Boltenstern Postcard Collection	Amy Woodson-Boulton
Connor Hilbert, Chase Haydel	Ties Asian American and African American Economies	Curtis Takada Rooks
Morgan Keating	Validating the "T" in LGBTQ: How Our Labor Markets and Economic Institutions Can Better Support Transgender Employees	Konstantin Platonov

POSTER SESSION
4:30 pm – 6:00 pm
1st Floor, University Hall

SCIENCE | ENGINEERING | MATH		
Presenters	Title	Advisors
Matthew Cameron	Abronia maritima Floral Scent Analysis for Characterization Over Time	Kate Eisen
Nikki Chun	Accuracy of parameter estimation for a simple gene regulatory network model is sensitive to the number of parameters estimated and the magnitude and direction of regulatory relationships	Kam Dahlquist, Ben Fitzpatrick
Alexander Minor	AI-Enhanced Robot Arm: a 3D-Printed, Cost-Effective, Open-Source Solution for Intelligent Automation	Lei Huang, Xiaodong Sun
Daniel Orr, Molly McCoy, Lawrence Stokes, Gabby Trujillo	Alcohol Related Imagery Resulting in Motor Cortical Activation	Christopher Cappelli, Yong Woo An
Lorenzo Wullschleger, Ryan Rengstorff	Analyzing the Effect of pilA Mutant Sinorhizobium meliloti on Nodule Development and Defense Gene Expression in Melilotus alba	Nancy Fujishige
Tyler Gonsowski, Gia Rizvi	Are there differences in testosterone levels and morphology between sexes in The Great Black-backed Gull?	Kristen Covino
Grace Landers	Beyond Recreation: Uncovering the Hidden Environmental Wealth of east LA's Urban Parks	Demian Willette
Vivek Dhingra, Brandon Bazile	Bringing Explainability to Hierarchical Systems with Causal Reinforcement Learning	Andrew Forney
Mimi Landers, Lainee Irribarren	Changes to Clearance Rate of Mytilus galloprovincialis in Response to Chronic Osmotic Stress	Maria Christina Vasquez
Megan Bhatt	Characterization and Analysis of Pink-Pigmented Facultative Methylotrophs on Plant Development	Nancy Fujishige
Viraj Jain	Computational investigation of the structural and electronic effects of phenol, alkane, and halogen fully substituted acenes	Emily Jarvis
Valentina Juarez Huerdo	Concussions History and Balance Assessment in Univeristy Club Men's Ice Hockey	Sarah Strand

POSTER SESSION
4:30 pm – 6:00 pm
1st Floor, University Hall

Cecilia J. Zaragoza, Ngoc K. Tran, A'Kaia L. Phelp, Milka Y. Zekarias, Amelie T. Dinh	Database, Display, and DevOps Improvements for GRNsight 7.2, a Web Application for Visualizing Gene Regulatory and Protein-Protein Interaction Network Models	John David Dionisio, Kam Dahlquist
Kennedy Melton	Do base triples form in the HTLV-1 pro-pol frameshift site?	Kathryn Mouzakis
Sean Neal, Natalie Hedding	Double trouble: Assessing the effects of environmental pollutant on coyotes through fluctuating asymmetry and comparing digitized skulls to scans of skulls	Wendy Binder
Alexa Siglar	Droning on About Plants: Quantifying 14 Years of Restoration Impact at a Los Angeles Park Using Remote Sensing	Demian Willette
Gavin Butts	Enumeration of Standard Immaculate Tableaux and Standard Young Composition Tableaux	Joshua Hallam
Noopur Barve	Examining potential age, location, and sex-based variation in the intra-annual migratory patterns of Magnolia warblers (Setophaga Magnolia) through hydrogen isotope analysis.	Kristen Covino
Ryann Dorris	Generation and Characterization of L-TRACE, a cell lineage tracing tool for Drosophila development	Cory Evans
Lauren Fabre	The grass is always greener where it's actually restored: Mitigating fire risk through micro-grasslands in urban parks	Demian Willette
Anisha Patel, Caitlyn Olshausen, Maelani Nguyen	Greater Motor Evoked Torque in ACLR Patients during Force Reproduction Task Compared to Healthy Controls	Yong Woo An
Alexander Provenzano	HSP70 Protein Abundance in Site Specific Locations of Mytilus galloprovincialis	Maria Christina Vasquez
Ben Santana	Hydrocarboxylation of styrene with carbon dioxide using a water soluble organic photoredox catalyst	Ryan Hunt
McKenna Brosnan, Alice de Sa Costa Pereira	Identifying mRNA bound by IMPDH	Steve Heller
Key Lige	Impact of Storms and Wave Action on Sand Accumulation in a Newly Restored Dune	Bouvier Brown, Alexandra Tower

POSTER SESSION
4:30 pm – 6:00 pm
1st Floor, University Hall

Reese McNally, Alexandra De Anda, Nimrat Sran, Jack Stanley	Interaction of RGG-motif peptides with MYC promoter G-quadruplex	Jeremy McCallum
Megan Warner, Olivia Kelleher	Investigating the Excited State Proton Transfer Reaction in Isoquinolines	Ryan Hunt
Gabriella O'Brien	Investigation and Characterization of Plant Growth Promoting Rhizobacteria (PGPR) of California Native Plants	Michelle Lum
Naomi Alvarado, Cameron Hajaliloo, Jaeden Rothrock,	Life Expectancy Predictive Model	Le Wang
Marisa Gomez	Measuring Frameshift Efficiency of SARS CoV-2 Frameshift Site Using Dual Fluorescence Reporter Proteins	Kathryn Mouzakis
Haley Huntington, Christine E. Phelps, Anika Khurana, Louis Y. Wang, Camryn Felipe	NEUROADAPTATIONS IN THE PRIMARY MOTOR CORTEX MAY DEVELOP IN INDIVIDUALS FOLLOWING ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTIVE SURGERY	Yong An
Robert Stanley, Joseph Douille, Gonzalo Gonzalez	Novel Design of an Autonomous Vehicle for Sewage Drain Measurement of Harmful Pollutants	Emily Hawkins, Brendan Smith
Taleen Madikians, Sofia Carranza	Older chicks get better food: An analysis of isotope ratios in Great Black-backed Gulls	Kristen Covino
Hayden Washington	Osmotic Performance of Mytilus Galloprovincialis Under Chronic Hyposalinity Stress	Maria Christina Vasquez
Alyssa Rodriguez	Osmotic performance of the mussel Mytilus galloprovincialis across increasing salinities	Maria Christina Vasquez
Manuel Sune	Perceived Stress Modulates Blood Pressure Reactivity to Stress in College Students	Caio Sousa
Tram Nguyen, Anthony Zaldana	Photoredox Catalysis for CO2 Reduction by Investigating p-Terphenyl for Sustainable Carbon Capture and Utilization	Ryan Hunt

POSTER SESSION
4:30 pm – 6:00 pm
1st Floor, University Hall

Gabriella Trujillo, Natalie Hogenboom, Daniel Orr, Molly McCoy, Lawrence Stokes, Giselle Haddad	Predictors of Academic Success in First Year Health and Human Sciences Majors	Christopher Cappelli
Stephanie Flores	Quantifying Animal Biodiversity within a one-year-old Micro-forest in east Los Angeles	Demian Willette
Neftali Rocha-Martin, Nigel Outley	Quantifying the impact of stem-loop thermodynamic stability on the frameshift efficiency	Katie Mouzakis
Diego Cuadros	RAG and Endangered Language Translation	Jared Coleman
Larissa Negom, Lauren Crumb	Sommelier training of an artificial nose	Emily Jarvis
Jason Chamorro	Stochastic and Online Task Graph Scheduling	Jared Coleman
Madrid Ghanavat	The Synthesis and Model Systems of Psychrophilin F	Steve Heller
Cassandra Erickson	The Temperature and Salinity Conditions of Southern California Marine Habitats	Maria Christina Vasquez, Nicole Bouvier-Brown
Leah Chincio	Two-Phase Statistical Sampling Methods for Parameter Estimation	Le Wang
Mwanday Yamegni	Understanding the Role of the Stem-Loop Structure in HTLV-1 gag-pro Frameshift Efficiency	Kathryn Mouzakis
Ashley Lee	The use of eDNA to monitor pollinator visitation in Ascott Hills micro-forest	Demian Willette
Hannah Kotek	Using RBG color values to track leaf development in Limonium perezii	Philippa Drennan
Raihana Zahra	Virtual Reality for Wellness: Investigating Its Impact on Undergraduate Stress Levels	Dondi Dionisio
Jackson Spiecker	Waste to Wonder: A Classroom Experiment Growing Oyster Mushrooms and Unveiling the Power of Bioremediation	Tatiana Kuzmenko, Demian Willette

POSTER SESSION
4:30 pm – 6:00 pm
1st Floor, University Hall

SOCIAL SCIENCE		
Presenters	Title	Advisors
Elijah Vera	Angeleno Attitudes Toward Affirmative Action after Supreme Court Decision	Brianne Gilbert
Sofia Butler	Angelenos on the Effectiveness of Local Climate Initiatives	Brianne Gilbert
Mariah Allen	Angelenos' Trust in Labor Unions by Race and Disability Status	Brianne Gilbert
Ella Tillmann	ASMR, Anxiety, and Personality Factors in College Students	David Hardy
Christopher Porter	Bounded Rationality, Tallying Heuristics, and Mancala.	Dorothea Herreiner
Dzorgbenyui Gbagbo, Maia Pecher, Colson Lee, Ryan Anderson,	Elementary school students' perceptions of similarity to boys and to girls across various domains	Negin Ghavami
Mylaan Gant, Milan Bowen, Madison Quick	Engagement, Safety, and Demographics: Evaluating SNL and FFN Programs	Cheryl Grills
Kelsey Armstrong	Factors Relating to Self-Reported Cognitive Status in College Students on the Medical Outcome Study (MOS) Health Status Questionnaire	David Hardy
McKenzie Reese	HPV Awareness and Adherence to Pap Screening Among Black Women Aged 21-44: Analysis of the Health Information National Trends Survey (2014-2022)	Timothy Williamson
Isabella Chhina	The Impact of Alcohol-Related Consequences on Mood in First-Year College Students	Joseph LaBrie
Garrett Howard-Jimenez	Individuals with Disabilities' Treatment by the LAPD	Brianne Gilbert
Brandon Dona-Velazquez	Interest in Cancer Screening, Cancer Beliefs, and Competing Concerns of Transportation, Housing, and Food Security among Hispanic/Latina women in the United States: Insights from the 2022 Health Information National Trends Survey	Timothy Williamson

POSTER SESSION
4:30 pm – 6:00 pm
1st Floor, University Hall

Maricia Marquez	Persistent Financial Impacts of COVID-19 on Latino Communities in Los Angeles	Brianne Gilbert
Francesca Lovato	Policing and Community Relations: Artificial Intelligence	Brianne Gilbert
Destiny Xochilt Bushman Reyes	The preservation of space and place	Juan Mah y Busch
Michelle Maxwell, Samantha Ikenna-Obioha, Hannah Tate, Adeline Ventrone-Ortega, Katelin Olson, Ava Nariman	Receptivity to Health Campaigns: The Role of Experience	Rachel Washburn
Angelina Matar	The Role of Loneliness on College Students' Self Perception and Well-Being	Alexandra Sturm
Metasebiya Tefera	The Role of Racial and Ethnic Belonging, Medical Mistrust, and Healthcare Discrimination in Having Discussions about Colorectal Cancer Screening among Black Adults aged 45-75: Results from the 2022 Health Information National Trends Survey	Timothy Williamson
Evan Wu, Gigi Truong, Kathryn Duff	The Role of Self-Compassion in Moderating the Relationship between Self-Conscious Emotions and Depression	Maire Ford, Timothy Williamson
Isabella Castro, Raul Rivera, Amanda Williams, Areika Novella	The Role of Self-Compassion Moderating the Relationship between Rumination and Anxiety	Timothy Williamson, Maire Ford
Laura Aguilar	Sibling Relationships Through the Lens of Culture and Inclusion of Other in the Self	Adam Fingerhut
Katelin Olson	Stress in the College Journey: A Qualitative Exploration of Stress Among College Students	Rachel Washburn
Gabriel Marotti	Understanding Medical Event Heterogeneity During Intervention: Infants with Tuberous Sclerosis Complex (TSC) Enrolled in a Caregiver-Mediated Telehealth Program	Maria Pizzano

POSTER SESSION
4:30 pm – 6:00 pm
1st Floor, University Hall

United Nations Sustainable Development Goals: Visual Art Designs	
College of Fine Arts and Communications Visual, Communication & Design BFA/BA Students in Art 3668 Typography II Prof. Garland Kirkpatrick	International Programs and Partnerships Associate Provost, Roberta Espinoza Director of Global Learning, Jennifer Ramos
Designers	
Melody Ramzy	Sophia Chavez
Gaby Zimmerman	Charlotte Glen
Ty Cueva	Riley Stump
Maya Lee	Tatiana Huitron
Hannah Song	London Boyd
Jonah Dees	Nicole Hui
Jennifer Choi	Matthew Gremmet

Abronia maritima Floral Scent Analysis for Characterization Over Time
Matthew Cameron

Strongly-scented flowers like roses are well-known for their aromas, which are important non-visual cues that attract pollinators. Much is unknown about scent emissions from weakly-scented flowers, despite their potential impact on pollination rates, and the characterization of floral scent emission trends over time is also underdeveloped. Abronia maritima is a native species that helps mitigate sand erosion in California's coastal dunes; it has weakly-scented purple inflorescences (groups of flowers growing from one stem). Information regarding the scent emitted from these inflorescences has not been published in the literature. Two methods were used for floral scent analysis of A. maritima inflorescences to fill in these literature gaps and begin to track floral scent emission changes over time. First, Solid-Phase Microextraction (SPME) concentrated ambient floral scent inside a static chamber using cut inflorescences, with the scent accumulating on a coated fiber to determine the identity of scent compounds. Then, trends in scent compound emissions were measured using Dynamic Headspace (DH) whereby vacuum pumps concentrated scent from an intact inflorescence onto an adsorbent material. Analysis for both SPME and DH methods utilized gas chromatography-mass spectroscopy (GC-MS). The expectation is that the scent emissions will change over time due to variation in biotic factors like genetics and co-flowering times as well as abiotic factors like temperature. The accumulation of scent data from A. maritima will help determine the viability of restoration efforts by providing more insight into what scent compounds pollinators are most attracted to and how these non-visual cues contribute to dune ecology.

Accuracy of parameter estimation for a simple gene regulatory network model is sensitive to the number of parameters estimated and the magnitude and direction of regulatory relationships
Nikki Chun

A gene regulatory network (GRN) is a set of transcription factors that regulate the expression of genes encoding other transcription factors. The dynamics of GRNs explain how gene expression changes over time. GRNmap is a MATLAB software package that uses ordinary differential equations to model dynamics of small-scale GRNs. The program estimates production rates, expression thresholds, and regulatory weights for each transcription factor in the network based on DNA microarray data and then performs forward simulations of model dynamics. While the model has been successfully used to understand networks of 15-20 genes, we wanted to closely examine how it works on a smaller scale to determine parameter sensitivity. All 21 possible "toy" networks of 3 nodes and 4 edges were created based on the simulated expression data outputted when known parameters were run through a forward simulation. Then the simulated data was used to estimate the parameters again. Comparison of the known to estimated parameters showed that estimating production rates in addition to weights and thresholds reduced the accuracy of the results. The model was also sensitive to the direction and magnitude of the weight parameters for a network with the same connectivity. This finding led to a narrower analysis of just one of the network motifs: the feed-forward loop, which has 3 nodes and 3 edges. This motif is relatively common in biological GRNs. Future studies focusing on the 8 permutations of this one network motif will provide more insight into the parameter sensitivity of the GRNmap model.

AI-Enhanced Robot Arm: a 3D-Printed, Cost-Effective, Open-Source Solution for Intelligent Automation
Alexander Minor

Advancements in robotic automation have significantly progressed in recent years, leading to a paradigm shift in contemporary manufacturing practices through the introduction of industrial robots. This technological evolution has predominantly been accessible to large-scale corporations possessing the requisite financial capabilities to invest in sophisticated robotic systems, which often entail substantial expenditures exceeding tens of thousands of dollars. The objective of this project is to develop a largely 3D-printed open-source robotic arm, with the intention of establishing a versatile and modular framework tailored to elementary automation tasks. To enable the execution of user-defined automation tasks, this project will incorporate state-of-the-art deep learning technologies to detect different target objects, identify their positions and dimensions, and make decisions on optimal actions to be taken to achieve the goal of the given automation task. The overarching goal of this project is to forge a cost-effective, easily integrable, and expandable product that leverages artificial intelligence and additive manufacture to foster a solution that is both

resilient to errors and adaptable to its applications. Throughout the research process, we have continuously iterated on our design to improve mechanical reliability and precision. We have finished one working prototype and are working on building a second, completely redesigned one. We have integrated the hardware with an open-source robotics framework (ROS) and developed an application to use a stereo vision camera to detect, locate and move towards known objects. Furthermore, we are currently integrating an open-source machine learning model (OpenVLA) to control the robot through natural language.

Alcohol Related Imagery Resulting in Motor Cortical Activation

Daniel Orr, Molly McCoy, Lawrence Stokes, Gabby Trujillo, Natalie Hogenboom, Giselle Haddad

Viewing images showing people engaged in motor related events can result in motor cortex activation. The motor cortex is connected to areas of the brain implicated in memory, learning, habit, and reward. Activation may encourage or promote behavioral action. This may provide a plausible biological explanation for high levels of alcohol use in young adults. PURPOSE: This pilot study aims to investigate if motor cortical activation occurs when presented with motor related images of alcohol (e.g., people drinking alcohol), compared to non-motor related imagery (e.g., rock, bottle, etc). METHODS: 2 male college-aged participants above the legal drinking age were presented with three trials of 60 images. Trials contained 3 groups, neutral images, images without people (NoPeople), and images of people drinking alcohol (People), each with 20 images. Electroencephalogram (EEG) data was analyzed to determine reductions (ERD) or increases (ERS) in power. Data was collected using Antneuro Waveguard net EEG cap. RESULTS: Analysis revealed a mean ERD/ERS value of -0.676 dB, representing a 14.43% reduction in power compared to baseline. The Neutral and NoPeople categories displayed the most significant ERD, while the People category showed lower power reductions. This difference suggests People images elicit a stronger neurological response than Neutral or NoPeople images. CONCLUSION: Findings suggest imagery of people engaged in motor activity (i.e., drinking alcohol) increases activity in the motor cortex, potentially encouraging or reinforcing behavioral action. These preliminary findings may support the idea that specific neural activity influences habit formation and behavioral responses to alcohol drinking imagery.

American Foreign Policy Decision Making Through the Lens of the Iran Nuclear Deal: Political Actors and Bureaucrats

Alexander Kane

In 2015, the United States helped broker the Joint Comprehensive Plan of Action to restrict Iranian nuclear weapon capabilities, but in 2018, the United States unilaterally withdrew. Since then, international monitors say Iran has greatly expanded its nuclear activities and is nearing the capability to develop a nuclear weapon. To understand this change, this paper examines U.S. foreign policy decision-making through the case study of the Iran Nuclear Deal. It investigates two inflection points: its signing in 2015 under the Obama administration and U.S. withdrawal in 2018 under the Trump administration. This paper analyzes competition among political and bureaucratic actors and their influence on U.S. foreign policy decision-making. This research addresses how constant contestation by bureaucrats and politicians affects U.S. foreign policy outcomes. Situating this question in the case study of the Iran Nuclear Deal illustrates how the U.S. engaged in seemingly self-harming foreign policy behavior and potentially provides implications for how future decisions will be made.

An Analysis on Pay Gaps for Latin American Immigrants in the United States
Rebeca Perez

The question of pay gaps for women and people of color has been thoroughly researched in the field of economics, however, pay gaps for immigrants haven't been given the same consideration. As anti-immigrant rhetoric and policies targeting Latin American immigrants intensify across the country, this question becomes increasingly relevant. To address this, I analyze data from the American Community Survey, using regressions to assess the impact of birthplace and citizenship on personal income. Additionally, I examine how residence in Sanctuary and Anti-Sanctuary states affect immigrants' incomes. I find that birthplace has a significant negative effect on the income of Latin American immigrants compared to US-born individuals. The largest gaps exist for Central Americans, followed by Caribbeans, and South Americans experiencing the smallest gaps. Citizenship also plays a key role with Latin American noncitizens earning 5% less than similar US-born individuals. Education, occupation, and other demographic information also explain some of the gaps, explaining 72.6% of the gap for Central Americans and 49.6% for Caribbeans but none of the gap for South Americans, suggesting discrimination likely plays a role in explaining the remaining gaps. Furthermore, immigrants living in Anti-Sanctuary states may face different income outcomes compared to those in Sanctuary states and neutral states. I will show whether Anti-Sanctuary laws play a significant role in affecting wages for Latin American immigrants, especially those without citizenship. Expanding Sanctuary policies, citizenship programs, and other policies that provide greater protections for immigrants are key to reducing these pay gaps.

Analyzing the Effect of pilA Mutant Sinorhizobium meliloti on Nodule Development and Defense Gene Expression in Melilotus alba
Lorenzo Wullschleger, Ryan Rengstorff

This study explores the impact of pilA mutant Sinorhizobium meliloti on nodule development and defense gene expression in Melilotus alba. Rhizobia are soil bacteria capable of fixing atmospheric nitrogen in symbiosis with leguminous plants. The pilA gene encodes the Type IVb pilus, an adhesin protein responsible for bacterial attachment to host root hairs. However, the complete role of the pilA gene in the Rhizobium-legume symbiosis has not yet been elucidated. Previous findings from Fujishige lab suggest that mutations in the pilA gene result in aberrant nodule morphology and downregulation of the Defective in Nitrogen Fixation 2 (DNF2) gene. ΔDNF2 mutants have been shown to exhibit an immune response to colonization leading to early nodule senescence. Similarly, the Nodules with Activated Defense 1 (NAD1) gene in legumes has been shown to exhibit immune repression during symbioses with rhizobia. In this study, M. alba was inoculated with wild type and ΔpilA strains. Root length, shoot length, and nodule morphology and colonization were quantified over several months. The expression of two immune-regulating genes, DNF2 and NAD1 RNA transcripts was assessed by RT-PCR. Preliminary results indicate no statistically significant differences in shoot and root length between wild type- and ΔpilA-inoculated M. alba. However, there is qualitatively and quantitatively less colonization of nodules by ΔpilA strains than by wild-type strains, suggesting that pilA may play a role in effective nodule colonization by rhizobia. Further research will analyze the impact of pilA mutation on DNF2 and NAD1 transcript expression levels and localization through in situ hybridization.

Angeleno Attitudes Toward Affirmative Action after Supreme Court Decision
Elijah Vera

Higher education has been understood to be the "great equalizer" for people. For years, the road to higher education for disenfranchised communities has been aided by affirmative action, however, the Supreme Court recently ruled against it. Using a sample of Los Angeles residents, this project examines differences in public opinion on the Supreme Court's decision while focusing on race and ethnicity, total household income, and formal education level. This study examines data acquired from the 2024 Angeleno Poll conducted by the Center for the Study of Los Angeles at Loyola Marymount University. This survey collected the opinions of 2,011 adults living in Los Angeles County on a range of issues, including the Supreme Court decision on affirmative action. Respondents were asked if they supported or opposed the decision. These data were subsequently examined within Stata SE. Findings show that a majority of Black and Latina/o residents opposed the decision, while a majority of Asian and white respondents supported it. Similarly, the data show that a majority of residents with household income below $100k opposed the decision, while a majority of residents with income above $100k supported it. Finally, the findings show that a majority of residents whose education does not reach college oppose the decision, while a majority of residents who have received a college degree and above support it. These results suggest a relationship between respondents' race and ethnicity, household income, and formal education to support for affirmative action, potentially to address America's growing socioeconomic gap.

Angelenos on the Effectiveness of Local Climate Initiatives
Sofia Butler

Climate change has become increasingly relevant for the city of Los Angeles. The data collected from this survey gauge how Angelenos perceive county and city initiatives to address climate change by demographic including but not limited to race, age, household income, and education level. This research was conducted with data collected during the 2024 Angeleno Poll, conducted by the Center for the Study of Los Angeles. A total of 2,011 adults living in LA County were surveyed by phone, online, and in-person. Participants were asked how much they think local government is doing to reduce the effects of climate change: "Too much", "Too little", and "About the right amount". Fifty-six percent of Los Angeles County residents believe that there is not enough action being taken to reduce the effects of climate change. Notably, sixty-one percent of those whose household income is $40,000 or less responded that not enough is being done by their local government. Additionally, sixty-three percent of respondents aged 18 to 29 stated the same, indicating that low-income and younger demographics are likely to want to see more climate action from their local governments. These findings hope to motivate local governments within Los Angeles County to reevaluate current strategies to best represent and resolve the sentiments of residents.

Angelenos' Trust in Labor Unions by Race and Disability Status
Mariah Allen

Labor unions in the U.S. have long championed worker rights in areas such as wages, working conditions, and benefits. Labor unions are especially important for promoting diverse work environments and protecting historically marginalized groups such as people of color and the disabled community. This study utilizes data from the 2024 Angeleno Poll conducted by the Center for the Study of Los Angeles at Loyola Marymount University to explore the extent to which Angelenos with disabilities

across racial groups trust labor unions. The poll surveyed 2,011 adult residents across Los Angeles County with a margin of error of ±3%. Survey participants were asked the following question: "How much of the time do you think you can trust labor unions to do what is right?" Responses to this question were analyzed by respondents' disability status and racial identity. Results revealed that trust for labor unions by people with disabilities is closely split. Fifty-six percent of respondents with a disability indicated they trust labor unions just about always or most of the time. Analyzing these responses by race presented a similar divide except for Asian respondents with a disability. Compared to all other racial groups, Asian disabled respondents showed the least amount of trust in labor unions, 64% indicating they trust labor unions only some of the time or none of the time. This research could be useful for labor union leadership to consider when organizing on behalf of Asian Angelenos who are a part of the disabled community.

Architecture and Lithic Objects in Teleilat Ghassul
Joseph Barragan

This paper will synthesize research on lithic artifacts and architecture of domestic and ritualistic spaces at Teleilat Ghassul, a Chalcolithic site in the Southern Levant. By examining the production methods, practical applications, and symbolic functions of stone objects, this study will reveal the interplay between daily life and cultural experiences in Ghassul. The objects range from basalt querns, grinding stones, spindle whorls, fan scrapers, mace-heads, and violin figurines. Additionally, an allies of domestic and ritualistic architecture at Ghassul will highlight the long lasting efforts of the Ghassulian community. This sections of the study will focus on construction techniques, materials sourced for constructions, the organization of multifunctional spaces, and the design of ritualistic areas such as the En-Gedi complex. These elements of Ghassul provide insights into the social, economic, and religious dynamics of this community who thrived between 5,200 B.C. and 4,500 B.C.. The integration of material culture and architectural methods demonstrate how comprehensive the evolution of early urbanization in the Southern Levant is, and how Ghassul thrived as a community for almost a thousand years

Are there differences in testosterone levels and morphology between sexes in The Great Black-backed Gull?
Tyler Gonsowski, Gia Rizvi

The Great Black-Backed Gull, Larus marinus, is of urgent conservation concern and recently studies of its ecology and physiology seek to fill various knowledge-gaps. However, this species is not sexually dimorphic which prevents studies of its biology that may vary between males and females without additional sampling efforts. As a first step, we attempted to investigate potential morphological and physiological differences between males and females. Using blood samples obtained from individual gulls, on a breeding colony on Appledore Island, Maine, we extracted DNA and amplified gene segments that differ between the sex chromosomes of gulls. We analyzed the DNA using gel electrophoresis and thus genetically determined sex for 110 individual gulls. We analyzed previously collected data on testosterone levels and morphometric measurements (head-bill length and tarsus length) to determine if these characteristics vary by sex in this species. It was determined that there was no statistical difference in testosterone levels by sex however males were significantly larger in both head bill and tarsus measurements. In conducting this research, experimental methods were created to successfully extract DNA from blood samples, proper storage techniques for blood samples were determined, and statistical analyses of genetic sex, head morphology, and testosterone were conducted

to find significance. This research could prove vital for field researchers as it could limit the scope of sampling required and assist with conservation efforts to preserve the species for future generations.

The Aristotelian Use of Pleasure in Recognizing the Dissolution of a Friendship
Lauren Acevedo

Aristotle seemingly makes the claim in EN IX.3 that virtuous friendships can dissolve when one friend "bec[omes] better and far outdistance[s] [the other] in excellence" (IX.3.1165b23). But, the possibility of this dissolution does not seem relevant to virtuous friendship in the most proper sense. Instead, it seems relevant to less-than-fully virtuous friendship, or "character-friendship", where neither friend is yet virtuous but where each friend has become a second self to the other, i.e., each friend is, to some extent, good in general and good for the other, is sufficiently stable in character to effectively deliberate with the other, and shares in the other's life. When these friendships are dissolving, the friends often suffer an excruciating amount of pain before they recognize the dissolution. The difficulty of making this recognition can, in part, be attributed to the friend once having been a second self, and to each friend mistakenly taking the other to still be good for her. But, it is not immediately apparent which indicator can reliably be used to make this recognition sooner, i.e., before an excruciating amount of pain has been suffered. In this paper, I will argue that pleasure, while complicated, can be used as an indicator to judge that a character-friendship is dissolving, provided that one is already oriented toward pleasure and pain such that she can reliably move from a lack of pleasure within her friendship to a judgment about her friend no longer being good for her.

Artificial Intelligence, Sentience, and Moral Status
Kaitlin Pintens

In the wake of new advancements in technology, moral philosophers find themselves at a crossroads when faced with the question of how we should treat beings like artificial intelligence (AI) and robots. In particular, what would it take for them to possess the same moral status as humans or animals? In this case, a being has moral status if and only if there is a specific moral reason or requirement for how it is to be treated, for its own sake. My research analyzes different theories of moral status and uses the sentience theory to examine the implications it has for AI. According to the sentience theory, an AI has moral status if and only if it can have pleasant or unpleasant experiences, such as pleasure and pain. I argue that a major challenge arises when considering the moral status of AI: the epistemological difficulty of knowing concretely at any given time if certain AI is sentient or not. However, an important implication of adopting the sentience view is that it would show that the way we treat other sentient living animals cannot be justified.

ASMR, Anxiety, and Personality Factors in College Students
Ella Tillmann

ASMR is a tingling sensation in response to triggering auditory and visual stimuli, and is often associated with mood improvement, including reduction in anxiety and depression symptoms. Past research indicates an association between ASMR and various personality traits, with ASMR individuals scoring high for Neuroticism and Openness. Here, 496 college students were recruited from our Psychology Participant Pool for an online study titled "Individual Differences in Psychology". Participants were between 17 and 25 years old (M = 19). Of the participants, 104 reported that they did experience ASMR. Data from a background questionnaire (age, ethnicity, a few medical/health questions), the Big Five

Inventory (BFI), the Beck Anxiety Inventory (BAI), the Beck Depression Inventory (BDI), the Barratt Impulsivity Scale (BIS), and an ASMR survey were collected via Qualtrics Software. Anova comparisons revealed significant differences for Openness ($p < .001$), with a higher score in the ASMR group ($M = 3.92$, $SD = 0.60$) compared to the Non-ASMR group ($M = 3.59$, $SD = 0.61$). Group comparison (ANOVAs) were run for the BAI, BDI, and the BIS. The only significant comparison was on the BAI ($p = .005$), with greater anxiety score in the ASMR group ($M = 43.21$, $SD = 12.75$) compared to the Non-ASMR group ($M = 39.07$, $SD = 12.66$). These results contribute to the limited research on associations between ASMR and personality traits. While results on Openness and ASMR agreed with past research findings, our findings on Neuroticism, Conscientiousness, Extraversion, and Agreeableness did not correspond with some past studies.

Balancing Employee Voice, Coaching, and Termination: An Ignatian Lens on Managing with Respect and Dignity

Emma Zuniga

In attending a Jesuit university as a Management and Leadership major, I have wondered: How do Ignatian principles, such as maintaining respect and dignity for others, intersect with managerial roles in the real world? This led to my research questions 1) Where do employee voice and coaching intersect with Ignatian management and leadership principles? 2) Would managers' use of Ignatian principles within a performance improvement process either prevent the need to terminate an employee or at least create a termination process that helps employees to experience a sense of respect and dignity? 3) Are managers who received a Jesuit education more likely to terminate employees with respect and dignity than those who have not? I began with a literature review, developed these research questions and an interview script, and then interviewed five managers. I focused on the limited management literature that analyzes Ignatian values and principles within management and leadership. I identified overlaps with the employee voice literature. Thus suggesting that when managers provide coaching, performance management, and consider alternatives such as reassignment before reaching the decision to terminate, an employee can experience more positive outcomes related to their well-being and fair treatment. Additionally, manager interviews suggested that their exposure to Ignatian values has, to some extent, informed their management values and priorities. These findings provide current and future managers with an insight on how to incorporate Ignatian principles into their termination process in order to help employees leave the organization knowing their respect and dignity were prioritized.

Becoming Closer: Answering the Question of Other-self-ness in Aristotle

Louis Yanucci

Friendship in Nichomachean Ethics has long been a source of investigation for scholars interested in making sense of Aristotle's insights. However, many of these discussions circle the concept of other-self-ness, an essential part of the highest kind of friendship, without devoting enough time to adequately describe what other-self-ness entails. To properly understand virtuous friendship, and all friendships in reference to achieving virtuous friendship (that is friendship in general), it is necessary to spend due time on the metaphysics of other-self-ness. Avoiding such an understanding leads to inevitable missteps that can misguide whole arguments, as will be made clear. By taking Elijah Milgram's clever conception of other-self-ness as procreative and supplying it with a metaphysical grounding this paper gets right about what is operating in other-self-ness. The paper uses Aristotle's Metaphysics, primarily Book Theta, to make sense of his undefined usage of other-self-ness by positing that to achieve other-self-ness is to activate a friend's potency through one's actions. The explicit metaphysical definition of other-self-ness

provides an in-depth understanding of the mechanics of other-self-ness but is also a point of reference for future scholarship that wishes to talk about peripheral issues of friendship without divulging into a necessary and lengthy tangent. With this groundwork provided it is no longer needed to cut metaphysical corners when one wishes to talk about other-self-ness.

Beyond Recreation: Uncovering the Hidden Environmental Wealth of east LA's Urban Parks
Grace Landers

Parks are routinely recognized for their recreational benefits, yet the magnitude and value of other ecosystem services parks provide are often overlooked. In this study, we quantify the ecosystem services, the free benefits given by nature to humans, provided by twelve urban parks across three council districts in east Los Angeles. Specifically we focus on quantifying carbon sequestration, rainfall-runoff avoided, ozone removal, nitrogen dioxide removal, and PM10. The species of each tree, its location within the park, tree condition, and the diameter at breast height were recorded for all trees over three m in height at each park (n = 2,200). These data were analyzed in the tree-benefit estimation tool, i-Tree Eco, generating park-specific ecological (e.g., lbs of CO2 stored) and economical (monetary) values. Preliminary results suggest the age of the park does not drive ecosystem service values, but rather have a positive correlation with the number of trees and their size. Age of the parks does, however, shape diversity, with older parks supporting higher total tree diversity, whereas younger parks have a higher portion of native California trees. This research plays a significant role in advocating for the thoughtful design and assessment of urban parks, particularly in underserved communities in Los Angeles County. By supporting the goals of the Los Angeles County Regional Park and Open Space District Plan, it underscores the need to increase equity, expand access to innovative park spaces, and promote sustainable management and environmental stewardship.

Beyond the Monogamous Landscape of Practically, Psychologically, and Personally Fulfilling Relationships: Considering Consensual Non-Monogamy
Lyla Bollag

What are the benefits of participating in consensual non-monogamous (CNM) relationships, and how do they affect well-being? This paper addresses these questions by examining the concept of relational flexibility (RF), defined as the permissible boundaries regarding emotional and behavioral connections with multiple partners. Because CNM is often misunderstood, RF provides a lens for understanding how open attitudes and adaptable boundaries can lead to higher levels of emotional and sexual satisfaction, personal growth, and psychological well-being. To investigate these benefits, a critical analysis was conducted of fifteen articles, three dissertations, and one essay. Sources were selected based on their publication in peer-reviewed journals, frequent citations by accredited authors, or affiliation with reputable institutions of higher education. The findings across these sources consistently showed that relationships characterized by greater RF were linked to increased happiness, enhanced communication skills, and stronger overall well-being. These benefits were reported primarily in CNM contexts, as monogamous relationships generally limit RF. Several studies reinforce the idea that CNM can feel "most natural" to participants (Wood et al.) and represent a "natural part of human sexuality" (Rubel and Bogaert). The personal growth observed in CNM relationships is closely tied to the development of advanced interpersonal skills, particularly communication, which is vital when navigating evolving boundaries. These results suggest that relational flexibility is a key factor in understanding how CNM relationships can foster well-being, providing a foundation for further research on the adaptive aspects of non-monogamous relationship structures.

Black Maternal Health Experiences and Disparities
Yotanna Ikenna-Obioha

Black women in the United States experience disproportionately high maternal mortality rates due to systemic barriers, implicit bias, and inadequate access to quality healthcare. This qualitative research explores Black women's experiences during pregnancy, labor, delivery, and postpartum care to highlight the structural inequities embedded in the maternal healthcare system. Through semi-structured interviews with two Black mothers, this study identifies three key themes: systemic barriers to accessing care, healthcare providers' dismissal of pain and concerns, and variability in postpartum care. Participants reported challenges such as lack of transportation, discrimination based on insurance status, and racial bias in pain management—issues that contribute to negative maternal health outcomes. One participant recounted being denied an epidural due to the harmful stereotype that Black women have a higher pain tolerance, while another described disparities in postpartum care depending on geographic location and hospital resources. These findings provide an emphasis on the need for implicit bias training, culturally competent care, and policy interventions that address social determinants of health. By focusing on Black women's lived experiences, this research contributes to the growing body of literature on racial disparities in maternal health and emphasizes the urgency of systemic reform within the healthcare system. Future research should examine the effectiveness of proposed interventions, including standardized postpartum care and improved access to community-based maternal support programs. Addressing these disparities is essential for creating an equitable healthcare system that prioritizes the well-being of all mothers, regardless of race. Without meaningful policy changes and culturally responsive practices, these inequities will continue to place Black mothers at disproportionate risk of harmful health outcomes.

Bounded Rationality, Tallying Heuristics, and Mancala.
Christopher Porter

This research explores bounded rationality by examining the effectiveness of simple decision-making heuristics in the two-player game Mancala. I developed a series of tallying decision heuristics, combined with ordered pocket selection and search heuristics, to account for how individual players make decisions with limited search capabilities. To better reflect how players are thought to perform searches in games with small search trees, a breadth-first search approach was implemented instead of the traditional depth-first search. These heuristics were then repeatedly pitted against each other in a tournament format, where with each tournament data was collected as the search capabilities of the agents increased. Using metrics such as win rate, top-performing strategies were identified, offering insights that may guide future data collection on the effectiveness of these heuristics when implemented by real players.

Bringing Explainability to Hierarchical Systems with Causal Reinforcement Learning
Vivek Dhingra, Brandon Bazile

Modeling complex hierarchical decision systems can be used for predicting the effects of policy changes before their enactment, such as understanding how new laws might influence students within an educational system. However, understanding the effects of policies on individuals versus populations requires a structured assertion of the system's causal dynamics. As such, we propose a novel reinforcement learning framework that integrates causal modeling to optimize decision-making in multi-agent hierarchical environments, like schools. Our approach simulates how policies at higher levels, such

as administration, influence intermediate layers, such as teachers, and ultimately affect students. The causal model captures relationships between these levels, providing agents with a structured understanding of how their actions propagate through the system. Compared to traditional reinforcement learning methods, our framework offers improved explainability by grounding decision-making in a transparent causal structure. This alignment with human reasoning processes not only enhances interpretability but also facilitates more effective policy development. The framework is validated through simulation studies and compared to traditional, model-free approaches in reinforcement learning to assess its effectiveness in complex, hierarchical systems.

Building Bridges to Liberation: An Analysis of Coalitional Processes
Elyssa Watson

Abstract This study delves into the topic of coalition building. As all struggles and oppressions are intertwined with one another the path to liberation is reliant on healthy and productive coalitions. Through the analysis of 11 semi-structured interviews with participants who are involved in coalitional work and range from college students to a professor. These participants are representative of multiple racial groups and sexual orientations providing a representative data set. In addition, this study includes an ethnography of a formal coalitional meeting. The results of this study identify motivating factors as well as the qualities of coalitions that are conducive to healthy coalitions such as the setting of intentions, ideological cohesion, and collective consciousness. The study also identifies hindering qualities such as political dissonance, ego, and poor leadership among others. The following research identifies the major pillars of coalitional work and uncovers a path toward sustainable long lasting coalitions.

Calculating Quasi-Normal Modes of Extended Uncertainty Principle Black Holes
Nicolas Salkin

This project is numerically computing quasinormal ringdown modes of Extended Uncertainty Principle (EUP) Schwarzchild black holes. The ringdown modes are caused by vibrations on the event horizon of two coalescing black holes such as those observed by the Laser Interferometer Gravitational Wave Observatory (LIGO) . The EUP modifies general relativity at distances above a new length scale L*~1012 meters or higher (the current maximum value being the size of the observable universe). The scale is particularly relevant for supermassive black holes, whose horizons are comparable to L*. The EUP alters observable features of the quasinormal modes, including the imaginary and real components of the modes across different angular and overtone modes. The calculated quasinormal modes are then compared to the theoretical implications of general relativity, and the data collected from LIGO. In addition, this project hopes to compare different calculation methods. In particular, the WKB and Leaver calculation methods are examined due to their relevant accuracy. This is to then test methods against each other to test their validity.

California Drought within the Strawberry Market
Karen Medrano Gonzalez

The California Drought of 2012-2016 significantly impacted water usage, leading to changes in water consumption patterns and affecting agricultural industries such as the strawberry industry. In this study, I collect USDA data related to the strawberry industry and employ econometric methods to evaluate the impact of the recent California drought on pricing in the strawberry industry. To supplement my results, I

also interview three major players in the industry. I find that the correlation between the quality of products is related to the weather conditions. However, the basic principle of supply and demands is the factor that drives pricing in the strawberry industry. The quality of the goods sold can be highly influenced by the drought leading to price changes.

A Call to Faith in Action: Ignacio Companions Jamaica
Grace Alcedo, Summer Alexander

Ignacio Companions is a global immersion program directed by Campus Ministry with the values of encounter, reflect, and respond. It is a year-long commitment of pre-trip community building meetings, the trip, and post-encounter action of integrating the learned practices and ideologies in everyday life. IC Jamaica's focus was "Faith in Action" and our community partners were Mustard Seed Communities, who provide lifelong care and companionship to those affected by mental and physical disabilities, HIV, and teenage pregnancy. The purpose of our encounter there was to engage holistically with the community and residents of Mustard Seed through hands-on service, companionship, and reflection. For the entire group, this trip opened our eyes to what genuine faithful service is, along with God's love of humanity. Encounter pushed us to think critically about what it means to go to the margins. In the margins, we discovered more of ourselves. A newfound abundance of love and grace allowed us to behold others in preciousness as we encountered the many challenges of service. We were called to a deeper understanding of service not just for others, but with others. Service stems from a single seed of love, or in this case, a mustard seed of love. The students of IC Jamaica worked to water these seeds through small acts of faith, whether that be the simple act of feeding residents, sharing stories and laughing with the aunties, or assisting with daily activities. Through these acts, we upheld Mustard Seeds' mission, ensuring that no child is abandoned twice.

Changes to Clearance Rate of Mytilus galloprovincialis in Response to Chronic Osmotic Stress
Mimi Landers, Lainee Irribarren

Understanding how marine mussels respond to environmental stress is vital in assessing coastal health. Climate change is expected to increase precipitation thus altering seawater salinity. Determining the capacity of mussels to respond to environmental stressors, such as osmotic stress, is important in understanding how to mitigate the effects of climate change. Our study investigated the effects of prolonged osmotic stress on the clearance rate (feeding rate) of the mussel Mytilus galloprovincialis from two distinct sites: Ballona Creek (BC) and Marina del Rey (MDR), CA. Mussels were exposed to four salinity treatments (5, 15, 25, 35ppt) for 2 weeks. Every other day, clearance rate was quantified by allowing mussels to feed for 30 minutes on a commercial shellfish diet, followed by relative fluorescence analysis of filtered water. Wet weight was recorded post-dissection and clearance rate was normalized to body mass. Results showed BC mussels consistently outperformed those from MDR across all salinity treatments. At the lowest salinity treatment (5 ppt), nearing freshwater conditions, extended exposure resulted in mussel mortality and no mussels survived past 7 days of exposure. Furthermore, we observed an increase in clearance rate over increasing exposure time for the other treatments. This indicates a possible compensatory response (increase in feeding) for other physiological impacts that the mussels may undergo due to osmotic stress. Thus, our data suggests that M. galloprovincialis mussels may have the ability to acclimate to hyposaline conditions that are between 35-15 ppt, but extended exposure to sever osmotic stress (5 ppt) results in mortality.

Characterization and Analysis of Pink-Pigmented Facultative Methylotrophs on Plant Development
Megan Bhatt

Pink-pigmented facultative methylotrophs (PPFMs) belong to the genus Methylobacterium and are distinguished by their ability to grow on single-carbon compounds such as methanol. While these Gram-negative, rod-shaped bacteria can be found in soil and aquatic environments, they are particularly abundant on plant surfaces including the phyllosphere (aerial plant surfaces), rhizosphere (root surface), and seed surface. Methanol is released from the plant surface as a by-product of cell wall metabolism. PPFMs use the methanol as a carbon source and in exchange, they foster a beneficial relationship with the plant by promoting plant growth and protecting against environmental stressors. Because they are slow growing, the impact of PPFM on plant microbial communities has not been as well-characterized as other plant-growth promoting bacteria. Understanding the role of PPFMs in the plant microbiome and as a plant growth regulator will be beneficial towards designing a future in sustainable agricultural growth methods. In this work, a novel strain of PPFM was isolated from Saintpaulia ionantha (African violet) leaves based on this unique ability to promote growth and inhibit fungal activity. 16S ribosomal DNA sequencing confirmed the identity of the bacterial isolate as a Methylobacterium sp. and potential for plant growth promotion. Further assays show that the novel PPFM isolate promotes seed germination in Medicago sativa (alfalfa) seeds and increases plant biomass when applied as a seed inoculum. This suggests that the novel PPFM either produces plant hormones or they induce hormone production in the plant. Future work will investigate the production of hormones by PPFM.

Cognitive Load and Decision Making
Collin Griffin

Cognitive load refers to the amount of mental resources required to process information and is crucial to understanding how people can work under pressure and their ability to multitask. In this study we investigated how effective people are able to complete a decision making task while under various amounts of cognitive load. The high cognitive load task includes asking participants to generate an elaborate lie about a video that they experienced. This group will be compared to a group who will endure low cognitive load in which they will be asked to tell the truth about the video they experienced. While the participants are to come up with the lie, they will be asked to perform a cognitive reflection test. The cognitive reflection task measures the usage of quick, intuitive decision making compared to more methodical, but slower thinking. In these tasks, intuitive answers tend to be incorrect, requiring extra thought to achieve high accuracy. We hypothesized that those who are in the high cognitive load condition will rely more on intuitive thinking, which will cause worse performance on the cognitive reflection task in comparison. The data presented will give insight to how lying affects cognitive load and consequently decision-making.

A Comparison of Textbooks' Problem-Solving Presentations
Dylan Tang

This project examined the problem-solving structure of worked examples in introductory physics textbooks. Research has shown that successful problem-solvers rarely solve questions in a linear fashion, rather they make mistakes but are constantly monitoring their work to identify and correct for these mistakes. Consequentially, a key component to the problem-solving process is metacognition, which is the ability to think about and regulate one’s own thinking in learning. It involves being aware and using

various strategies to attempt problem-solving. Several textbooks were chosen for evaluation on how they demonstrate problem-solving skills and metacognition in their guided problems. Some worked examples were analyzed with the help of the ACE-M (Analyze the task, Create a plan, Execute the plan, and Monitor understanding and actions) framework. This builds George Pólya's influential problem-solving process but includes monitoring that occurs throughout the problem-solving process, not solely after it is finished. Because critical thinking and decision-making are necessary in verifying answers, the reviews also determined if textbooks provided heuristics to readers who may struggle with their practice. Although textbooks briefly explain how physics concepts apply to a word problem, they do not illustrate metacognitive thinking and how to navigate around the mistakes students would make. Textbooks tend to present solutions free of heuristics that might help students identify mistakes, rather they present examples as a linear, error-free sequence of steps. Various examples from the examined textbooks will be presented along with the analysis of how thoroughly they describe problem-solving.

Computational and Experimental Flow Measurement of a Magnetohydrodynamic Fluid Pump.
Quintin Yates

When a magnetic field and electrical current are perpendicular to each other, an ionized fluid will experience a force. This "Lorentz Force" can be applied to create a Magnetohydrodynamic pump. These pumps have potential applications in desalination and fluid systems in space. The technology is very new, and still not well understood. This project will develop a comprehensive understanding of the fluid flow through a Magnetohydrodynamic pump. This understanding will come from a combination of experimental and computational modeling systems. Lagrangian Particle Tracking (LPT) uses neutrally buoyant particles and a camera system to collect qualitative velocity information of a system. This project will collect experimental LPT data and compare it with previous attempts to track fluid motion. This project will also test the application of a flow meter to cross validate the velocity data. Computationally, this project will use the ANSYS FLUENT MHD model to compare the experimental results with an accurate numerical model. The long-term goal in the LMU Fluids of Astrophysical Bodies(FAB) Lab is to send the MHD pump on a CubeSat test flight to verify the pump's performance in space. In sum, this project aims to increase confidence in the present pump design to further justify a test in space.

Computational investigation of the structural and electronic effects of phenol, alkane, and halogen fully substituted acenes
Viraj Jain

Acenes are a class of polycyclic aromatic hydrocarbons that hold promise as organic semiconductors in solar cells and electronics. Their instability and poor solubility present challenges that can be improved by replacing the hydrogens with phenyl, halogen or alkyl substituents to sterically induce a helical twist to these otherwise planar molecules. This twisted structure also impacts the optical properties of these molecules. We employ time-dependent density functional theory (TD DFT) to investigate acenes spanning from naphthalene to heptacene. We focus on the structural and electronic effects of fully substituting these molecular backbones to create seven distinct substituent series, many of which have been previously synthesized. The end-to-end intramolecular twist increases linearly with acene length for all series, however the degree of twist varies significantly depending on the specific substituent. All series display similar trends of increasing red shifts in the estimated HOMO-LUMO, fundamental, and optical gaps as the number of fused rings along the polycyclic backbone increases. Despite the similarity of measured gaps, features distinguishing the substituent effects are more apparent in their near UV-visual spectra. Furthermore, halogen and alkyl substituents display local minima for two other structural

configurations in addition to the twisted structure. Energy calculations show these three distinct configurations are energetically competitive at room temperature. One novel non-helical geometry shows significant reductions in excitation energies, while the other displays similar values to the twisted acene structures. The structural and electronic trends of these series provide insight to guide potential use of highly substituted acenes in functional materials.

Concussions History and Balance Assessment in University Club Men's Ice Hockey
Valentina Juarez Huerdo, Genevieve C. Kaminski

Introduction: Ice hockey is among the top sports for head injury incidence, making it relevant to investigate how concussions might impact players. Given that balance is crucial for maintaining stability on the ice and executing complex maneuvers; understanding the effects of concussions on this neuromuscular skill is essential for player safety and performance. Methods: A University's Club Ice Hockey team participated in the study over eight years. Sixty-seven players met the inclusion criteria. They completed a series of tests involving the Neurocom® Balance Manager which measures their stability and balance in different positions. The Stability Evaluation Test (SET) incorporates double-limb balance, single-leg balance on the non-dominant leg, and tandem stance with the non-dominant leg in the back; with all of these stances, the players had their hands on their hips and eyes closed. The test was repeated twice, once on the force plate, and once with an unstable foam pad on the force plate. Results: Among sixty-seven ice hockey players, seventy concussions were recorded, with most occurring during games. Setting significantly influenced concussion rates ($p < 0.001$) as well as their position, with goalies exhibiting a higher incidence of concussions compared to skaters ($p = 0.043$). Players reporting dizziness showed notably worse performance on both single-leg and tandem foam tests compared to those without this symptom. Discussion: Our next steps involve using the EyePlus Duo eye-tracking device and comparing post-concussion balance scores with pre-season baselines to enhance player safety and performance.

Consequences of the Strategic Defense Initiative: Britain and NATO
Carrie Knickrehm

In 1983, President Ronald Reagan announced his plan to build a laser-based missile defense system called the Strategic Defense Initiative (SDI). Reagan believed SDI would usher in a nuclear-free world, but members of the North Atlantic Treaty Organization (NATO), like Britain, met Reagan's proposition with skepticism and intrigue. Earlier research on SDI focused on the program's domestic reception and its impact on America's bilateral relationships with the Soviet Union and Europe. This study prioritizes the British reaction to the SDI program to show how SDI strained the internal dynamics of NATO. I used primary sources such as Margaret Thatcher's memoirs, declassified documents from Downing Street, and articles from the Royal Institute of International Affairs. These sources captured an Island conflicted over its participation in the SDI program and its position in NATO. I also referred to Reagan's memoirs to understand how Britain's interests, and concerns about SDI conflicted with the interests and concerns of other NATO members, like the United States. I argue that SDI affected the function and identity of NATO. The introduction of SDI threatened the sovereignty of members like Britain, encouraged competition between NATO members and nonmembers for SDI contracts, and derailed talks to limit nuclear weapons. This research is important because it questions the relevance of international alliances when each member has interests contradicting one another. In addition, it is important to examine the influence of middle powers in these organizations, especially when the actions of current Superpowers seem to go unchallenged.

Country-Level Analysis of the Effect of Medical Equipment on HIV/AIDS Prevalence and Global Health Security,
Kanna Parker

A country-level data analysis of the effect of medical equipment (and other factors) on HIV/AIDS prevalence and Global Health Security in Sub-Saharan Africa is conducted in this study. The control variable is the United Health Coverage index. Data sources include the World Health Organization and the World Bank. Country fixed effects regression models are run, with controls for the Gini index, ART, and percent of GDP devoted to government health expenditures. Countries with more medical equipment are expected to have lower prevalence of HIV/AIDS, holding other factors constant.

Database, Display, and DevOps Improvements for GRNsight 7.2, a Web Application for Visualizing Gene Regulatory and Protein-Protein Interaction Network Models
Cecilia J. Zaragoza, Ngoc K. Tran, A'Kaia L. Phelp, Milka Y. Zekarias, Amelie T. Dinh

GRNsight is an open-source web application and service for visualizing models of gene regulatory networks (GRNs). A gene regulatory network consists of genes, transcription factors, and the regulatory connections between them, which govern the expression level of mRNA and protein from genes. GRNsight can now also display protein-protein physical interaction (PPI) networks. Whereas GRNs have directed edges, PPI networks have undirected edges to indicate protein binding. We have continued to integrate PPI networks so that users can display node coloring on a PPI with a choice of top or bottom datasets of expression data. GRNsight reads user-uploaded Microsoft Excel workbooks and automatically displays a graph. Users without their own data can use GRNsight's back-end PostgreSQL database to select a GRN or PPI based on yeast data from AllianceMine. Database loading scripts were ported to AllianceMine because YeastMine was discontinued. New graph functionality has been implemented that allows users to restrict the graph to viewport so that they can drag, zoom, and move the graph with the nodes staying within the application’s bounding box. On the DevOps side, the project’s continuous integration/development pipeline has been migrated from Travis CI to GitHub Actions, integrating workflows for automated builds, unit tests, and linting to streamline development processes and improve maintainability. Ongoing efforts prioritize bug resolution, user interface enhancements, and improved documentation. GRNsight is now positioned to comprehensively address GRNs and PPIs, offering a unified platform for visualizing diverse molecular interaction models. GRNsight is available at https://dondi.github.io/GRNsight/.

The Death of the Architect: How Artistic and Subversive Movements Reflect Power Dynamics in Urban Spaces
Luke Antaky

In 1967, French philosopher Roland Barthes put forth a literary theory called The Death of the Author. This postmodern theory posits that the reader has true control over the meaning of a text, attempting to supplant the dominant interpretation that authors themselves have that power. Similarly, urban planning and city design are often approached from a top-down perspective, which marginalizes the needs of city inhabitants. In such approaches, political capital is exclusively in the hands of elite decision-makers. Much of the existing research on subversive artistic and political movements in urban spaces accurately contextualizes the particular needs and struggles of their respective time periods. However, these works often fail to address the ever-growing concerns of modern cities, such as sustainability, social equity, and

the democratization of public spaces. This paper seeks to reinterpret the dynamics of power and agency in urban landscapes in the same vein that Barthes reimagined the relationship between the author and the reader. It argues that city inhabitants actively reinterpret, reshape, and reclaim their environments, subverting the hierarchical power structures imposed by government officials, city planners, and architects.

The Design of Time: Envisioning the Future through Science Fiction Production Design in the Alien Franchise

Josephine Spanier

In filmmaking, the production designer works closely with the director and cinematographer to ensure cohesion and uniqueness in the film's visual design. This collaboration often provides the designer with a strong degree of influence on the film's final look, thus shaping the thematic and visual impact of a film on the audience. In highly stylized and fantastical genres, such as science fiction, production design plays an especially important role in creating worlds that may be entirely different from the one we currently live in, while still reflecting the real-world context in which the film was made. This phenomena can particularly be seen in the production design in Alien (Ridley Scott, 1979) and its subsequent sequels and spinoffs. A case study of the Alien franchise reveals how these design conventions evolve over time, from the industrial style of the original film, to the sleek CGI-enhanced minimalism of Prometheus (Ridley Scott, 2012), and the homages to the original film in Alien: Romulus (Fede Álvarez, 2024) that reflect larger trends in the film industry trend of rebooting older titles. These three examples of Alien franchise films demonstrate how production design styles evolve over time in response to cultural and technological change, while still serving the ultimate goal of preserving verisimilitude.

Disruption of the Embryonic Serotonergic System by Psilocin Affects Cranial Neural Crest Derivatives

Mandoline Nguyen

The U.S. Food and Drug Administration has recently designated psilocybin as "breakthrough therapy" to treat cases of treatment-resistant depression. Psilocybin, the psychedelic agent of Psilocybe mushrooms, is metabolized into its active congener, psilocin, in the liver. However, more research is needed to understand the implications of psilocybin and psilocin on embryonic and fetal development. Psilocin interacts broadly with the serotonergic receptor system as an agonist of serotonin receptors 1A, 2A, and 2C (5-HT1A, 2A, 2C) and as an inverse agonist of 5-HT2B. In addition to regulating many physiological functions in the adult, serotonin regulates migration and differentiation in an embryonic population of cells called cranial neural crest cells. These cells give rise to the craniofacial bones as well as several structures of the heart. We aim to study the effect of disrupting serotonin receptors by exposure to psilocin on the developing embryo. We hypothesize that psilocin causes developmental changes in craniofacial bones and in the heart. Chicken embryos were treated with psilocin doses of 10 uM, 20 uM, or 100 uM in ovo at stage 7 (Day 1). Embryos were then collected at stage 36 (Day 10), when the facial bones and heart have formed. Morphometric analysis of the craniofacial bones and cardiac valves were performed using FIJI. Our preliminary results show that embryos treated with psilocin exhibit a smaller head size. Additionally, embryos exposed to psilocin have formed abnormal cardiac valves and exhibit external phenotypes that potentially indicate heart failure.

Distribution of G-PCMs Within Roof Insulation for Mediterranean Residential Applications
Owen Daulton

This presentation will examine the use of homemade phase change materials (PCMs) in combination with various existing insulation materials in a Mediterranean climate. As global temperature continues to rise, dangerous heat events magnify the need for efficient insulation in all building types. Simple PCM materials constructed of eutectic salt compounds, called Glauber's salt PCMs or G-PCMs, can be made of accessible materials by homeowners themselves. PCM insulation promises increased insulation efficiency in passive or quasi-passive building applications. Specific case studies and research efforts into application methods remain necessary to determine the best configuration when combining multiple insulation types, including PCMs. Additionally, the implementation of PCMs in a retrofit environment where insulation already exists must be explored to allow for cost-benefit analyses. We test several configurations of home made G-PCM packets in combination with common insulation types to determine whether fabrication and implementation of PCM materials is a worthwhile investment for consumers. We aim to determine in this work whether benefits of this technology offset significant barriers to entry such as cost, set point optimization, and installation. Factors such as distribution and spacing, material thickness, and surface area are considered and explored. Testing occurs in the Mediterranean climate of Southern California and test results account for specific incident solar power such that results can be extrapolated for other similar climate zones.

Do base triples form in the HTLV-1 pro-pol frameshift site?
Kennedy Melton

Human T-cell lymphotropic virus type 1 (HTLV-1) is a retrovirus that infects T-cells, or white blood cells in the immune system. The ~8,500 nucleotide HTLV-1 RNA genome encodes a small number of viral proteins, whose synthesis is critical to the virus' ability to spread. Two sites within the genome have a dual function: they encode a viral protein, and they regulate viral protein synthesis by altering how the RNA is read by a host ribosome. These sites include an RNA structure. Each RNA structure folds into a complex, 3D shape that regulates the frameshift site's function. For the HTLV-1 pro-pol frameshift site, the RNA secondary (local base-pairing) structure is known, but its tertiary structure (long-range interactions) is unknown. To fully understand the RNA structure's function, we need to determine what tertiary interactions it has. Base-triples are a type of tertiary interaction often found in complex RNA structure that can be important to their function. The research question proposed is "Do base-triples form in the HTLV-1 pro-pol frameshift site?" To answer this question, the RNA structure will be analyzed using circular dichroism. Specifically, spectra will be collected for samples in which base triples can and cannot form. The ratio of positive to negative bands of each spectrum will be compared to look for evidence of base-triple formation, which would be observed if a triplex structure had formed. If the band ratio shows a significant difference, this will suggest that base-triples form in this frameshift site, and warrant a higher resolution analysis using a different technique.

Dolores Mission Engaged Learning from THEO 3232 [US Latinx Theology Class]
Sophia Rivera, Andrea Felix, Benjamin Serna, Sophia Rivera

Our project's purpose was to engage with the community of Dolores Mission (DM) in Boyle Heights and explore how our experiences there could be understood through Latinx Theology concepts. By immersing ourselves in the community, we sought to learn directly from the people of DM and apply theological frameworks to highlight and understand their lived experiences.

Our class was assigned to visit DM, attend mass and community events such as the feast day of Our Lady of Sorrows, and conduct in-depth interviews with the women elders of the church. Through these interactions with community members, Jesuit priests, and lay leaders we were able to witness the ways in which faith and social justice are deeply interconnected in the DM community.
This project had a profound personal and spiritual impact. For some, it provided an opportunity to reconnect with their relationship with religion, for others, it was a deeply nostalgic and enriching experience; particularly as Catholic Latinos engaging with theological traditions. The project also allowed us to honor the work of the women elders, whose leadership and contributions have shaped DM in meaningful ways, as they continue to advocate for women's roles within the Catholic Church. While we would not claim that our presence significantly benefited the community—since DM's work has been ongoing for decades—the people we met warmly welcomed us and were eager to share their experiences. Ultimately, witnessing the community's praxis-based engagement and commitment to justice inspired us to reflect on our own roles in service and faith.

Domestic Architecture and Ceramics in the Chalcolithic Southern Levant
Mary O'Callaghan

The Chalcolithic Period (ca. 4500–3500 BCE) in the Southern Levant was a period marked by major developments in technology and social structures, as well as the Secondary Products Revolution that led to the utilization of livestock and plants for dairy products, textiles, and olive oil following the preceding Neolithic period. Such developments were reflected in the domestic architecture, as well as material culture in domestic contexts. My research focuses on exploring domestic architecture and their artifacts at various Chalcolithic sites in the Southern Levant. I analyze the layouts of settlements at these sites in order to understand shifting social structures and explore theories concerning the rise of social stratification, as well as prestige objects that support those theories. I compare the settlements and analyze the often vastly different domestic architectural styles and material culture, particularly the ceramics that played an important role in the Secondary Products Revolution. I also examine secondary burials that have been found within domestic structures in order to better understand Chalcolithic mortuary practices and the relationship between people and their homes. My research reconstructs images of everyday life in the Chalcolithic Southern Levant across the region while focusing on food ways, textiles, and mortuary practices.

Double trouble: Assessing the effects of environmental pollutant on coyotes through fluctuating asymmetry and comparing digitized skulls to scans of skulls
Sean Neal, Natalie Hedding

Vertebrate growth and development have been shown to be negatively affected by environmental pollutants, which are also concentrated up the food chain; these can cause deviations from bilateral symmetry, which can be demonstrated by a measure known as fluctuating asymmetry (FA). Previous research showed higher levels of FA in a more carnivorous rodent near Owen's Lake, CA (a site with dangerous levels of heavy metals) compared to more herbivorous rodents outside of Owen's Lake. To better examine the effects of developmental stressors on higher trophic levels, Canis latrans (coyote) skulls were measured from inside and outside Kern County, CA (an area with elevated emissions of carbon monoxide, particulate matter, and other toxic pollutants). In this study, we used 39 skull landmarks— identifiable and repeatable points on the skull— to measure the degree of FA within and

between individuals in skull shape and hypothesized that C. latrans skulls inside Kern County will show greater FA compared to outside Kern County. In addition, we realized that getting physical skulls in the future is going to be a challenge, and other museum collections might be more willing to provide digitized images of skulls. Because of this, we wanted to use these skulls to determine if data taken from 3D scans of C. latrans skulls gave us similar data. We hypothesized that landmarks from scans of skulls using our NextEngine scanner converted to measurable landmarks in MeshLab would give us similar data as those taken directly from the physical skulls using the MicroScribe digitizer.

Droning on About Plants: Quantifying 14 Years of Restoration Impact at a Los Angeles Park Using Remote Sensing

Alexa Siglar

Ascot Hills Park is an urban park in the El Sereno neighborhood of east Los Angeles that has undergone continuous restoration efforts to reintroduce California native trees and plants from 2011-2025. This study seeks to understand how a 14 year period of continuous restoration by a variety of stakeholders has changed the park by asking the following question: How has native plant cover changed over time? To answer this question, percent native plant cover for each year from 2011-2025 will be quantified using drone/satellite imagery and machine learning software. Drone/satellite images and ArcGIS Pro will also be used to create a series of maps that visualize all the restoration efforts carried out by various stakeholders at the park over time. It is expected that native plant cover will show a statistically significant increase from 2011-2025, demonstrating that restoration at Ascot Hills Park has been successful. The maps created within this project will be provided to restoration stakeholders as a record of their significant efforts and to inform future methods of restoration. This study will provide a unique addition to the literature by examining continuous restoration at a single park over an extended period. This study will also quantify the success of ongoing restoration efforts and inform future restoration strategies in order to increase the valuable ecosystem services that Ascot Hills Park provides to an underserved neighborhood of Los Angeles.

Dual Identities, Shared Struggles: The Effects of Mother-Daughter Relationships in Immigrant Families

Esmeralda Hernandez

This study explores the complex dynamics that exist within mother-daughter relationships in immigrant families. From 6 in-depth interviews with Latina daughters, this research examined how their relationship with their mothers influenced aspects of their current lives. It focused on the challenges typically faced by these families, cultural adaptation and difficulties in communication, trying to determine how they impacted the daughter's identity formation. The emerging key themes ranged from cultural barriers, lack of communication, socioeconomic stress, and the changing perspectives of the daughters as they entered adulthood. The finding revealed that despite the challenges faced by these types of relationships - conflict during adolescence - they also fostered unique strengths that each participant embedded into their identity: resilience, hard work, and strong family ties. This study aims to highlight the struggles faced by mothers and daughters due to their complex relationships and contribute to a broader understanding of how these experiences have an impact on mental health and identity.

The Ecological Impact of Silvetia compressa on Biodiversity in Intertidal Ecosystems: A Survey of Bluff Cove Beach

Sophie Henkenmeier

The intertidal macroalga, Silvetia compressa, plays an essential role as an ecosystem engineer, providing habitat and influencing biodiversity in rocky intertidal zones. Despite its importance, the degree to which Silvetia cover affects species richness and its interactions with environmental factors remain underexplored. This study investigates the relationship between Silvetia cover and biodiversity at Bluff Cove Beach, Palos Verdes, California. Percent cover of Silvetia and associated species richness were recorded across transect lines and quadrats. Environmental variables, including temperature, salinity, turbidity, and dissolved oxygen, were measured using a YSI Sonde. Statistical tests, including Pearson's correlations and regression analyses, were used to assess the relationships between Silvetia cover, species richness, and environmental factors. Results indicate a significant positive correlation between Silvetia cover and species richness, though Silvetia alone explained only a small proportion of the variation. Biodiversity indices revealed that areas with dense Silvetia cover (>50%) supported the highest species diversity and evenness, while moderate cover levels (26–50%) showed reduced diversity. Species-specific trends suggest that taxa, such as chitons, anemones, and coralline red algae are more associated with Silvetia canopies, whereas barnacles, snails, and limpets were more abundant in areas with little to no Silvetia cover. These findings highlight the role of Silvetia compressa in structuring intertidal communities and suggest that conservation efforts should consider restoring and maintaining Silvetia populations to support biodiversity. Further research on seasonal and long-term trends could improve our understanding of Silvetia's ecological function in dynamic intertidal ecosystems.

Effects of Social Exclusion and Negative Academic Feedback on Academic Self-Efficacy

Sarah Omachi

Effects Social Exclusion and Negative Academic Feedback on Academic Self-Efficacy Background: Experiences of social exclusion and feelings of shame from negative academic feedback (or receiving a low score on a test) have been associated with poorer academic performance and lower academic self-efficacy, highlighting the importance of social and emotional experiences in predicting educational outcomes. However, most prior studies have tested relationships among these variables in correlational research, which limits understanding of directionality and prevents causal inference. Purpose: This experimental study tested whether social exclusion (vs. inclusion) and negative (vs. neutral) academic feedback affect students' academic self-efficacy—the perceived ability to master academic challenges—in a laboratory setting. Method: College students (N=32; Mean age=19.09) completed an online ball-tossing game that experimentally manipulated experiences of social exclusion or inclusion. Then, participants solved standardized math problems and were randomized again to either be informed that they scored lower than other students (negative feedback) or receive no score. Participants completed self-report measures of state academic self-efficacy before and after feedback.
Results: There was a significant interaction between time and feedback ($F(1,28)=6.22$, $p=.019$). Academic self-efficacy scores significantly decreased from pre- ($M=19.31$, $SD=2.42$) to post-feedback ($M=17.63$, $SD=3.38$) for those in the negative feedback condition ($MD=1.69$ $SE=0.41$, $p<.001$ 95% CI [-2.53, -.85]), but there was no difference in self-efficacy scores from pre- to post-feedback for those in the neutral feedback condition. There was no interaction between social exclusion and time on academic self-efficacy.
Conclusions: Preliminary findings indicate that negative feedback more strongly affects academic self-efficacy than experiences of social exclusion.

The Eldest Latina Daughter Identity
Marissa Cueva

Within the past few years, social media platforms such as Instagram and TikTok have seen an upsurge in discourse surrounding eldest Latina daughters. In observing these trends, I began to see a shift in the use of 'Eldest Latina Daughter,' growing from being a trait to a distinct identity. In my research, I ask the questions: how are "eldest Latina daughters" representing themselves and how has "eldest Latina daughter" become depicted as an identity? Where did this articulation start? What is the significance of representation and naming for Eldest Latina Daughters? I draw on two primary methods, media studies and critical race and ethnic studies. I have created a digital archive of Instagram and Tiktok posts of the Eldest Latina Daughter to trace the origin of the trend and assess its reach and impact. I found that through this trend, as verbiage becomes readily available to name this shared experience, a community has formed. The acknowledgement of this shared experience made possible by the accessibility of social media allowed for the shift in regarding Eldest Latina Daughter as an identity. While Chicano/Latino Studies scholars have discussed the relationship between gender and culture, there has been no discussion about the impact of birth order on personality and identity. Similarly, there has been no discussion of the impact of culture on birth order. The articulation of Eldest Latina Daughter as an identity and the impact of these three intersections has broadened conversations on the relationships among gender, culture, and birth order.

Elementary school students' perceptions of similarity to boys and to girls across various domains
Dzorgbenyui Gbagbo, Maia Pecher, Colson Lee, Ryan Anderson

Gender is a meaningful social identity that shapes many aspects of children's development (Martin et al., 2017). Studies have consistently demonstrated that gender is a multidimensional construct that includes not only children' gender labeling but also their beliefs about adherence to gender norms and intergroup bias (De France et al., 2025). In this study, we drew on social identity theory (Tajfel & Turner, 1986) to examine elementary school children's perception of similarity to boys and to girls across different domains. As shown in Table 1, students (N=167) enrolled in 2nd through 5th grades were recruited from three local elementary schools. Students answered questions about their similarity to boys and then again about their similarity to girls concerning the activities they like to do, the way they look, dress, and act as well as the sports they play and watch, and the games and toys they play with. Analysis revealed that, across all domains, both boy and girl participants perceived themselves as more similar to their same-gender than different-gender peers. However, boy and girl participants reported significantly different levels of similarity to their different gender peers. As shown in the figures, boy participants consistently reported low levels of similarity to girls across domains. By contrast, girl participants' similarity to boys depended on the domain, for example, showing the highest level of similarity to boys in activities, sports, and toys. Future research would benefit from better understanding the factors that shape children's perceptions of gender similarity across various domains and contexts.

An Encounter with Creation: IC Galapagos
Andrea Payre Madrigal, Victor Caceres

During a week-long trip to the Galápagos Islands, our group of students and staff experienced God through the region's unique biodiversity and nature. Swimming with sharks, turtles, and sea lions sparked deep reflections on humanity's place within God's Creation. Nightly meetings and prayers guided our discussions, reinforcing a shared understanding of faith and the human-to-nature connection.

IC Galápagos: Care for Creation challenged each participant's perspective, cultivating a deeper awareness of solidarity with our planet.
Amidst the ocean, sky, and volcanic landscapes of Santa Cruz and Bartolomé Islands, we found a profound kinship with God's Creation. Conversations often turned to Los Angeles and its newly emerged Pacific Palisades and Eaton fires, drawing parallels between pristine ecosystems and the environmental crises we face at home. Our experiences in the Galápagos revealed what a healthy Earth looks like and urged us to rethink environmental justice. Caring for our planet is not just about conservation, it is about communal action and shared responsibility. Through our journey, we realized that caring for the Earth is also caring for others—our neighbors, communities, and future generations. Now more than ever, respect for both the planet and human dignity is being challenged. Our trip was not only about learning and preserving biodiversity but also about human connection, solidarity, and reconsidering our role in the vastness of Creation. IC Galápagos and Care for Creation taught us that through collective action, tending to the Earth's ever-growing needs is not just possible, it is necessary.

Engagement, Safety, and Demographics: Evaluating SNL and FFN Programs
Mylaan Gant, Milan Bowen, Madison Quick

Summer Night Lights (SNL) and Fall Friday Nights (FFN) are community-based programs sponsored by the Los Angeles Mayor's Office's Gang Reduction & Youth Development (GRYD) program to promote violence prevention through community engagement. This study explores the relationship between demographic characteristics and SNL's effectiveness in improving outcomes of community engagement and enhanced perceptions of safety. Additionally, it examines how insights from SNL can inform the growth of FFN, a newer program, to better support its communities served. Demographic factors included gender, age, ethnicity, and housing status. Drawing on a mixed-methods (quant and qual) design, we analyzed survey responses from 3,854 attendees across 44 SNL sites and structured interviews to capture feedback and perceptions of safety. Findings show that more women attend SNL, while younger participants (18-25) tend to visit repeatedly. Comparatively, the FFN population tends to be predominantly male and older (30-49). Latinx/Hispanic individuals are strongly represented in both programs, reflecting the demographic composition of participating neighborhoods. Additionally, SNL often attracts families and broader community members, while FFN has a higher proportion of unhoused individuals attending for resources and social support. Responses across these groups show varied motivations for participation and different levels of perceived community safety. Analyses also indicate that SNL attendees report a heightened sense of safety during program hours, suggesting a level of effectiveness that FFN needs further development. Overall, this research shows the importance of targeted programming and inclusive outreach to better the impact of community events.

Enumeration of Standard Immaculate Tableaux and Standard Young Composition Tableaux
Gavin Butts

Standard immaculate tableau are representations of compositions, useful in the theory of quasisymmetric functions, and standard Young composition tableaux are also a representation of composition that relates to the combinatorics of quasisymmetric Schur functions. We provide an enumerative combinatorial approach for proving equivalences of descent sets of standard Young composition tableaux. Using this, we continue on previous work exploring the expansion of Young quasisymmetric Schur functions into Dual immaculate quasisymmetric functions, detailing a deep connection between various algebraic combinatorial objects.

An Ethnography: Through The Lens of Filipino Identity
Alex Raji

Going into this ethnography, my questions were: How do Filipino photographers use their medium to express themselves? What impact have Filipino photographers had on their community? Are there any major themes across these photographers? How do these photographers believe they impact and showcase their community and themselves? To get answers to these questions, I conducted four in-depth interviews with Filipino Photographers and took notes on things I observed during my time with these photographers. I asked very open-ended questions and discussed with them as a fellow photographer. After conducting this, I created a PowerPoint and paper which compiles a lot of photographs along with descriptions from the photographers. I learned that amongst the group, photography showcases what being Filipino can look like for the younger generations—in addition, to straying away from the traditional path they were expected to take. Lastly, connecting and learning more about their own culture and identities through the process and; empowering local Filipino creatives to be able to showcase a part of themselves. These findings show the importance of photography in shaping, guiding, and expressing Filipino culture in America, and using it to shape one's identity. It can be assumed that this medium is also impacting others who are coming into this country and is something that is underrepresented.

Evolving Terrors: How The American Horror Genre Mirrors Societal Change and Audience Anxieties.
Madeleine Gault

This research project explores how the American Horror genre evolves to reflect the shifting anxieties of its audiences, transcending boundaries by tapping into the deepest fears and zeitgeist of each era. Analyzing some of the genre's original "slasher" films, as well as films released post-9/11 and now in the digital age, some of the questions this paper explores are: How does the genre cycle back to traditional conventions but place a spin on them? How did the genre tap into the 1970-1980 society's severe ignorance concerning mental illness? In what ways did the traumatic events of 9/11 desensitize audiences to violence? Drawing from works such as Jacqueline Noll Zimmerman's "People Like Ourselves: Portrayals of Mental Illness in the Movies" and Aaron Michael Kerner's "Torture Porn in the Wake of 9/11: Horror, Exploitation, and the Cinema of Sensation," this paper seeks to reveal the American Horror genre's exceptional ability to capture predominant social tensions and trauma, which helps the genre attract new consumers, maintain its loyal audience, and survive the test of time.

Examining potential age, location, and sex-based variation in the intra-annual migratory patterns of Magnolia warblers (Setophaga Magnolia) through hydrogen isotope analysis.
Noopur Barve

The migratory patterns of birds can provide necessary information on a species' behaviors, interactions in various ecosystems, and individual characteristics. The use of stable-hydrogen isotope ratios in determining migratory patterns is a useful tool for studying broad-scale migratory patterns. The technique compares the ratio of stable-hydrogen isotopes in a particular bird's feathers to the ratio of stable-hydrogen isotopes across large geographic areas. This study examines the variation in migratory patterns of the Magnolia Warbler (Setophaga magnolia) in the year 2019, using data collected at a stopover site in Maine, Appledore Island Migration Station (AIMS). We analyze the stable-hydrogen isotope data from feather samples (N=210) collected from Magnolia Warblers passing through AIMS, in

order to assess potential variation in migratory patterns due to age, sex, or initial location. We hypothesize that southern breeding populations will migrate earlier than northern breeding populations. My research will serve as a pilot study for stable-hydrogen isotope analysis of data collected from Magnolia Warblers from the past 10 years. The increasing urgency of the climate crisis makes this research particularly relevant; by analyzing data we have collected over a number of years and determining interannual variation in migration patterns, we can have a better understanding of how Magnolia Warblers' migratory patterns are changing over time.

Experimental Analysis of Flow Surrounding EDNA Collection Devices
Mohammad AlArbash

The seafood industry is worth 151 billion USD globally. Sustainability is an important factor to consider, as over-fishing and illegal practices are detrimental to this industry, and the first step to sustainability is proper identification of what is being caught. Environmental-DNA (eDNA) metabarcoding allows for accurate surveying of the concentration of species in a local area that is being surveyed and allows for passive collection, which consists of membranes that collect eDNA and make surveillance more efficient and affordable. To determine the efficacy of these devices, this presentation will experimentally explore the devices that hold the membranes under different mimicked oceanic conditions. So far, results show that water does not directly flow through the membrane, but rather around the holder devices. These results, while unexpected, still demonstrate that sufficient amounts of water hit the frontal surfaces of the membranes situated in the devices. Future experimentation with better lighting conditions and a more consistent flow generator could better show these results.

Exploring the Limits of Transferability of PC and VR Gaming Skills to Real-World Tasks
David Williams

Recent research suggests that action computer and virtual reality (VR) video games can enhance reaction time, attention, and spatial orientation while improving motor coordination. However, little research has directly compared the two gaming platforms and how gaming-related gains may carry over to other perceptual and motor tasks. This project seeks to extend this work and investigate whether skills developed while playing a first-person shooting game on either a PC or VR platform, such as faster response times and more accurate spatial perception, transfer to other contexts, and whether VR's immersive nature facilitates stronger transfer than traditional PC-based gaming. To address this question, participants train on PC and VR aim-based programs, with assessments at baseline, midway, and post-training. These evaluations focus on cognitive, perceptual, and motor skills (e.g., reaction time, spatial orientation, visual reliance, standing postural stability) measured both in digital environments and with physical tasks. We also seek to identify critical individual factors, such as prior gaming experience, motion-sickness susceptibility, or neurodivergence, that may affect skill transfer. Ultimately, these insights could inform guidelines for balanced gaming practices and the design of interventions that harness the cognitive and motor benefits of gaming.

Factors Relating to Self-Reported Cognitive Status in College Students on the Medical Outcome Study (MOS) Health Status Questionnaire

Kelsey Armstrong

Existing research and mood/psychosocial assessments show that college students experience high levels of stress and depression due to a variety of factors, which can affect cognition. In the present study, we examined factors that could potentially impact cognitive status in a sample of college students (n = 95). Participants were between 18 and 23 years old (M = 19 years) with 27 males and 68 females. Participants completed a questionnaire about COVID history, alcohol consumption, sleep, and other behaviors, the Beck Depression Inventory (BDI-II), and the Beck Anxiety Inventory (BAI). Cognitive status from the past month was assessed using the Cognitive Functioning subscale from a Health Status Questionnaire. Greater depression ($r = -.604$, $p < .001$), greater anxiety ($r = -.685$, $p < .001$), fewer hours of sleep per night ($r = .235$, $p = .023$), biological sex (being female) ($r = -.342$, $p < .001$), and more frequent drinking in the past month ($r = -.277$, $p = .008$) were associated with worse Cognitive Functioning scores. Exercise and COVID status showed no associations. These findings suggest that this Cognitive Functioning subscale is a sensitive measure in a non-clinical population like college students. It is interesting that less sleep, increased drinking, and higher anxiety/depression are associated with worse cognitive status in college students, as these are behaviors and conditions that are particularly common among this population. Future directions include examining these factors in specific subgroups of college students.

Forgotten Soldiers: Native Americans and the Vietnam War

Mariana Barrios

Native American peoples tend to be viewed as ahistorical or external to progress and modernity, and this has limited understanding of continued Native American presence in contemporary society. Therefore, despite Natives having a strong record of service in the American armed forces through the 20th century and into the modern day, scholarship on Native American presence in the Vietnam War has been limited, and what does exist has been written by largely Native scholars only. As general historical perspectives on Vietnam have developed, Native Americans have been largely left out of the picture. This project uses a combination of newspaper and magazine articles, interviews, transcripts, and scholarly literature to illuminate this often-ignored history and to argue that Native American experiences with the Vietnam War are unique and deserving of attention as they highlight Native culture and presence through the 20th century. This project aims to suggest that a more thorough understanding of this ignored aspect of Native history is needed to understand Native American presence in the United States.Native American peoples tend to be viewed as ahistorical or external to progress and modernity, and this has limited understanding of continued Native American presence in contemporary society. Therefore, despite Natives having a strong record of service in the American armed forces through the 20th century and into the modern day, scholarship on Native American presence in the Vietnam War has been limited, and what does exist has been written by largely Native scholars only. As general historical perspectives on Vietnam have developed, Native Americans have been largely left out of the picture. This project uses a combination of newspaper and magazine articles, interviews, transcripts, and scholarly literature to illuminate this often-ignored history and to argue that Native American experiences with the Vietnam War are unique and deserving of attention as they highlight Native culture and presence through the 20th century. This project aims to suggest that a more thorough understanding of this ignored aspect of Native history is needed to understand Native American presence in the United States.

From Poolside to Profit Margins: A Deep Dive into Playa Hotels & Resorts
Elisabeth Zygmunt

From a consumer perspective, all-inclusive leisure travel requires few worries coupled with plenty of enjoyment and relaxation. However, from a managerial perspective, there are infinite operations to run to ensure a positive guest experience. Playa Hotels & Resorts (NASDAQ: PLYA) is a leader in all-inclusive vacations in some of the best vacation destinations worldwide. Compared to some of the biggest names and players in the industry, Playa has a relatively small market cap of $1.49B. In order to maintain a stable and positive growth pattern, Playa must capitalize on the growing popularity of all-inclusive models and consumer health concerns, along with continuing to expand its portfolio with collaborations that include well-known brand names. This report will include a comprehensive business and industry overview, coupled with financial models, such as a Discounted Cash Flow valuation, backed with explanations and reasoning for the predictions. The information will be sourced from a combination of multiple analysts' opinions, along with my opinions based on my background in consulting work for hotels. I plan to offer Playa advice on how to improve its operations and business model based on its anticipated growth that is laid out in the various models. In turn, this will overall improve its financial performance moving forward.

Gastrulation in the Trachemys scripta Turtle
Perla Rand

Introduction:
Gastrulation, a critical stage of embryogenesis, establishes the germ layers that give rise to all organ systems in an organism. Yet, the mechanism of gastrulation in reptiles is poorly understood. Turtles are particularly unique due to traits such as the carapace and inverted scapulae, as well as their close evolutionary ties to archosaurs. We aim to understand the mechanism of reptilian gastrulation in turtle, using Trachemys scripta as model. Identifying the timeline of gastrulation in T. scripta allows comparisons of gastrulation in both anamniotes and amniotes, contributing to a deeper understanding of evolutionary changes in early embryonic development. Methods:
To understand the mechanism of gastrulation, we examined external characteristics including the blastopore lip, blastoporal canal, notochordal plate, blastodisc, and area pellucida. In addition, we examined internal characteristics in sagittal sections. The combination of external and internal features allowed a reconstruction of the chronology of gastrulation. Additionally, we completed an extensive review of existing literature and compared our observations to prior work. We utilized morphometric analysis of the external structures using FIJI, focusing on structures indicative of development in turtles and other vertebrate models. Results:
Our proposed sequence for gastrulation in T. scripta begins with the earliest stage exhibiting an upturned blastopore, followed by a flat blastopore, and finally, a downturned blastopore that shifts caudally at the onset of neurulation. Morphometric analysis of N=29 gastrulae revealed (1) notochordal plate length correlated with specific stages of gastrulation, (2) blastoporal lip length gradually decreased, and (3) the blastopore shifted caudally over time.

Generalized Uncertainty Principle effects on Self-gravitating Quantum systems and Gravitational Decoherence models
Weston LaRhette

The quantum nature of spacetime and the unification of quantum mechanics with general relativity, aptly termed quantum gravity, remains one of the largest and most profound unresolved problems in physics. A central challenge is the lack of experimental evidence regarding quantum gravity effects, which are expected to become significant only at the Planck scale, placing most theoretical predictions beyond plausible experimental reach or falsifiability. In the face of these enormous difficulties, alternative approaches that explore the quantum-gravity interplay in regimes accessible to current or near-future experiments without directly probing the Planck scale are warranted. Several signatures of testable low-energy quantum-gravitational effects have been proposed. Those explored in this research are the Generalized Uncertainty Principle (GUP) found in many contending quantum gravity theories, the Schrödinger-Newton equation of semiclassical gravity theory, and the gravitational decoherence model of Diósi and Penrose. We investigate how Generalized Uncertainty Principle effects modify the phenomena of the latter two models in an effort to unify a model-independent feature of quantum gravity with alternative, indirect approaches to integrating quantum and gravitational phenomena. GUP-modified superposition collapse times for the Diósi-Penrose model are found, showing observable deviations from their non-modified counterparts depending on the specific GUP framework. Additionally, we find GUP-induced modifications to the Schrödinger-Newton equation in the context of its role in wavefunction 'collapse' and its implications for the quantum harmonic oscillator which are also observable depending on the particular GUP framework.

Generation and Characterization of L-TRACE, a cell lineage tracing tool for Drosophila development
Ryann Dorris

LexA is a bacterial transactivator that has been modified to express genes in Drosophila that are controlled by the lexA operator element (lexAop). Here at LMU there has been a large and growing number of transgenic LexA-expressing flies created, under the control of fly enhancer elements. The corresponding pattern of expression is poorly characterized or completely unknown. To address this, a new genetic tool called L-TRACE was created. L-TRACE is responsive to LexA activity and can reveal developmental expression patterns in vivo using fluorescent reporter protein expression. The L-TRACE tool (fly line) has already been made; however, its function needs to be tested and validated to ensure the tool works as predicted before it can be shared with the fly research community. This project aims to characterize the L-TRACE took by crossing L-TRACE flies to a variety of LexA-expressing lines with known and unknown patterns of expression using L-TRACE reporter expression in dissected tissues such as the brain.

Ghosts on Stage: Bridging Cultural Realms in Theatre through The Haunting of Hannon XII
Nicole Li

My presentation explores the intersection of Eastern and Western theatrical traditions, through the lens of Chinese Kunqu Opera and Shakespearean plays, focusing on how The Haunting of Hannon XII: Secret, Dark, and Midnight Things (written and directed by Kevin Wetmore) integrates Bloody Hands and Macbeth, using the portrayal of ghosts on stage as both a thematic and physical presence to convey a broader message on cross-culturalism in theatre. This presentation aims to contribute to the dialogue

on cross-culturalism in theatre by examining the fusion of these two rich theatrical traditions. Through a personal performing experience in The Haunting of Hannon XII, I examined integrating Shakespearean play and Kunqu Opera into the performance, analyzing the portrayal of characters, supernatural themes, and integration of two languages. My experience as a performer allowed me to give voice to cultures that are often overlooked in mainstream theatre in the West. By examining the fusion of these two theatrical styles, I gained deeper insight into how cross-cultural exchange in theatre can enrich the storytelling experience and contribute to my growth as a performer. By sharing my experience growing as a performer in a multicultural theatre, I hope to challenge stereotypes and contribute to a greater understanding of Eastern cultural narratives. This presentation demonstrates how cross-cultural exchange not only enriches modern theatre but also fosters inclusivity, breaking down barriers between cultures and offering new perspectives on universal themes.

The grass is always greener where it's actually restored: Mitigating fire risk through micro-grasslands in urban parks

Lauren Fabre

Urbanization is a consistent threat to land development due to factors such as reduced vegetation, elevated air temperatures, and increased heat absorption. A common solution to urbanization is planting trees, though this solution proves to be risky in fire-prone areas due to density and layering of foliage providing an easy path for fire to spread. On the other hand, grasslands can be used to counter fire risk and climate change. By using purple needlegrass (Nassella pulchra), a low-fire risk grass, species, we aim to restore urban park hillsides where trees are prohibited, hoping to expand this project into other parks and hillsides. A 5,000 square foot micro-grassland, overly dense as opposed to a normal grassland, was planted at Ascot Hills Park in east Los Angeles using over 500 grasses; monitored based on growth, organismal presence, and soil carbon levels. Soil samples, where soil is dried, weighed, and sent for testing, are taken at months 0, 3, 6, and 12 to observe carbon sequestration and soil composition throughout growth. Monthly sweep-netting and pit traps are being used to measure the organisms attracted to the micro-grassland are observed to measure species richness and concentration. Images of the micro-grassland are taken using a 1m-by-1m quadrat to observe sustenance of the grassland via percent cover visuals. Further analysis can help determine if a micro-grassland is a suitable development on hillsides to prevent fire-spread and build climate resiliency in urban areas of Los Angeles.

Greater Motor Evoked Torque in ACLR Patients during Force Reproduction Task Compared to Healthy Controls

Anisha Patel, Caitlyn Olshausen, Maelani Nguyen

Persistent quadriceps dysfunction following anterior cruciate ligament reconstruction (ACLR) may lead to further pathological complication. Quadricep weakness and decreased motor control has been associated with corticospinal excitability, but it remains unclear how this altered excitability affects ACLR patients during knee strengthening tasks. PURPOSE: The purpose of this study was to examine force reproduction strategies during isometric knee extension between ACLR patients and healthy controls (CONT). METHODS: Sixteen ACLR participants (20.06 ± 1.237yrs, 75.585 ± 17.123kg, 171.871 ± 7.223cm) and sixteen CONT patients (20.56 ± 1.365yrs, 66.298 ± 11.033kg, 167.958 ± 9.897cm) performed an isometric force reproduction task. They were instructed to maintain 10% of maximal voluntary isometric contraction (MVIC) in response to unexpected Transcranial Magnetic Stimulation (TMS) over the primary motor cortex, targeting the quadriceps. The TMS impulses were randomly delivered at two different intensities: 120% and 140% active motor threshold (AMT). Additionally, resting

twitch torque (RTT) was measured by delivering TMS stimulations at 100% intensity over the quadriceps. Motor evoked torque (MET, %) was calculated by normalizing the 120% and 140% peak change by dividing the RTT values. Comparisons were made using 2-way ANOVAs with one within factor (intensity, 2 levels) and one between factor (group, 2 levels). RESULTS: A significant group X condition interaction effect was observed for MET ($F_{1,30}=13.815$, $p=0.001$, $\eta p^2=0.315$). Pairwise comparisons showed that MET was greater at AMT140% than AMT120% in both groups (ACLR: 246.90±117.93 vs 129.84±12.55, $p<0.001$, 95% CI [89.68, 144.45]; CONT: 113.31±42.94 vs 66.74±40.04, $p=0.002$, 95% CI [19.19, 73.96]), with the ACLR group exhibiting higher MET than the CONT group in both conditions. CONCLUSION: Increased torque of the quadriceps in response to unanticipated TMS pulses indicate an alteration in corticospinal tract excitability which may be due to a protective neural adaptation to the injury. However, this altered corticospinal excitability may also cause heightened quadriceps contraction during high-intensity tasks, potentially resulting in anterior tibial translation, which could put stress on the ACL and increase the risk of retear.

How Does Chronic Illness Impact Personal Identity, Relationships, and Social Roles?
Yotanna Ikenna-Obioha

Chronic illness extends beyond physical symptoms, profoundly reshaping personal identity, relationships, and social roles. This qualitative study explores the lived experiences of individuals managing chronic illness to understand its psychosocial effects. Using a phenomenological approach, data were collected through in-depth interviews with two participants—a student with celiac disease and a working mother with primary immunodeficiency. The findings from the interviews showed a thematic analysis which was identified in three key themes: (1) disruption of self-identity, (2) strain on close relationships, and (3) challenges in fulfilling social roles. Participants described an evolving sense of self, as illness required them to redefine their identities and adapt to unpredictable health fluctuations. Relationship dynamics were often strained due to misunderstandings, role shifts, and emotional burdens. Social participation, particularly in academic and professional settings, was hindered by health-related limitations, this led to feelings of exclusion and inadequacy for the individuals. These findings align with the frameworks of biographical disruption (Bury, 1982) and loss of self (Charmaz, 1983), emphasizing the need for holistic care that integrates psychological and social support alongside medical treatment. The study brings an emphasis on the importance of increasing awareness, workplace accommodations, and community support systems to enhance the quality of life for individuals with chronic conditions. Future research should expand on diverse demographic experiences and the long-term impact of chronic illness on career development and overall social integration for the individuals diagnosed. These findings highlight the necessity for healthcare providers, policymakers, and society to adopt a more inclusive and compassionate approach that acknowledges the complex impact of chronic illness on individuals' daily lives.

How Does Rural Anxiety Affect Voting?
Owen Saranecki

Since the term entered the mainstream in the early 2010's, "rural consciousness" has become a topic that is used to provide answers to questions regarding why the rural voting block does not follow standard trends of policy preferences and voting behavior. Building on previous literature that identifies place-based grievance and anxiety as a distinct feature of rural consciousness, this paper investigates how these grievances and anxieties affect voting behavior and policy preferences, as well as how rural residents view their urban counterparts. Using a series of in-depth interviews amongst residents of

Stephenson County, Illinois, and Tazewell County, Illinois, this paper aims to discover common trends amongst rural residents that provide an answer to the question: How does rural anxiety affect voting? I expect that place-based grievance and anxiety will cause rural residents to become distrustful of the government and disdainful of urban populations, resulting in a preference towards policies that take away power from governmental agencies. Key terms: rural consciousness, rural, urban, voting behavior, psychology

HPV Awareness and Adherence to Pap Screening Among Black Women Aged 21-44: Analysis of the Health Information National Trends Survey (2014-2022)
McKenzie Reese

Background: HPV-related cancers remain a significant health concern for women, with prevention strategies like the HPV vaccine and routine Pap screenings playing a critical role in reducing risk. Black women experience disproportionate HPV-related health disparities, highlighting the need for awareness and adherence to preventive measures. However, limited research has examined trends in HPV awareness and Pap screening adherence over time in this population. Purpose: This study assessed changes in self-reported adherence to Pap screening guidelines, awareness of HPV, and awareness of the HPV vaccine among Black women aged 21-44 using nationally representative data from HINTS (2014, 2018, 2022). Methods: Three multivariate logistic regression analyses were conducted on a subsample of Black women (n=309), with survey year as the predictor and three outcome variables: (1) Pap screening adherence, (2) HPV awareness, and (3) HPV vaccine awareness. Covariates included age, health insurance, and education. Results: No significant changes were observed across survey years for Pap screening adherence (93% in 2014, 88% in 2018, 86% in 2022, ps > .291), HPV awareness (79%, 76%, 82%, ps > .513), or HPV vaccine awareness (77%, 67%, 78%, ps > .265). Education significantly predicted HPV and vaccine awareness, with lower educational attainment associated with lower awareness. Conclusions: While Pap screening adherence remained high, disparities in HPV awareness based on education highlight the need for targeted interventions to address HPV-related health inequities among Black women.

HSP70 Protein Abundance in Site Specific Locations of Mytilus galloprovincialis
Alexander Provenzano

HSP70 Protein Abundance in Site Specific Locations of Mytilus galloprovincialis Alexander Provenzano and M. C. Vasquez Mytilus galloprovincialis is a species of marine invertebrate bivalve that creates habitat structures, increasing ecosystem biodiversity. M. galloprovincialis are filter feeders that take in toxins from the ecosystem, and when studied on a molecular level, can give an accurate indication of ecosystem health. Studies of M. galloprovincialis tissue cellular responses, such as molecular chaperones like HSP70, indicate the overall stress that the mussel is experiencing from the environment. In this study, mussel gill tissue was used to determine the relative osmotic stress tolerance of M. galloprovincialis exposed to different salinities and from two different sites, Ballona Creek (BC) and Marina del Rey Harbor (MDR). We hypothesized that mussels collected from BC would have a greater HSP70 protein abundance, and thus tolerance to low salinity, due to experiencing more frequent changes in environmental salinity compared to mussels collected from MDR. Mussels were collected from MDR and BC, and acclimated to non-stressful conditions in the lab. Mussels were then exposed to salinity treatments ranging from 5-40 ppt for 7 days. Following exposure, gill tissue was collected, homogenized and the abundance of HSP70 was determined using standard western blot protocols. BC samples showed higher levels of HSP70 protein abundance in experimental conditions compared to MDR

mussels, suggesting an increased ability to survive in stressful environments. In BC samples, mussels exposed to 20 ppt showed the greatest HSP70 production. Our study provides vital information regarding cellular responses to osmotic stress that may be important for informing studies of ecosystem diversity and environmental change.

Hydrocarboxylation of styrene with carbon dioxide using a water soluble organic photoredox catalyst

Ben Santana

Greenhouse gases are a large contributor to global warming, with carbon dioxide seeing an increase in concentration by almost 50% from human activity alone. Para-terphenyl is a molecule which can reduce an array of other molecules when exposed to light, and is able to act as a catalyst within the reduction cycle. The reduction of carbon dioxide by para-terphenyl allows for a selective hydrocarboxylation of styrenes. A water-soluble version of para-terphenyl was synthesized by adding sulfonyl groups to either end of the molecule, allowing for the reduction of styrenes when exposed to a high powered mercury lamp. Subjecting the reactant 4-fluorostyrene to an excited state disodium p-terphenyl-4,4 in the presence of pentamethylpiperidine and carbon dioxide yields a fluorinated phenylpropanoic acid. Qualification of the products was done through fluorine nuclear magnetic resonance.

Identifying mRNA bound by IMPDH

Alice de Sa Costa Periera, McKenna Brosnan

Inosine monophosphate dehydrogenase (IMPDH) is a key enzyme in guanine nucleotide biosynthesis, essential for cell proliferation, and thus shows potential for research in cancerous growth, immune function, and genetic diseases. Moreover, various mutations in the human IMPDH1 gene are known to cause blindness through an as-yet-unknown mechanism. While IMPDH is known to bind mRNA, the identity of its mRNA targets remains unclear. This study aims to identify the mRNAs bound by yeast IMPDH homologs, Imd3 and Imd4, and to explore their potential regulatory roles in cellular function. We immunoprecipitated TAP-tagged Imd3 and Imd4 from Saccharomyces cerevisiae, with Puf3-TAP as a positive control and wild-type (BY4741) as a negative control. Following protein isolation, mRNA was extracted, purified, and sent for Illumina sequencing. Preliminary results confirm successful isolation of Imd3 and Imd4 proteins via SDS-PAGE and RNA extraction, with high concentrations and low contamination. Bioinformatics analyses will identify mRNA sequence features, providing insights into IMPDH's role in post-transcriptional regulation.
Understanding the mRNA targets of IMPDH may reveal new regulatory pathways influencing cellular metabolism and disease mechanisms. Future work includes further investigating IMPDH mRNA interactions and assessing their impact on the enzyme functions.
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Identity as Status in the Entertainment Industry through Contemporary Documentary Media

Emery Markey

This paper examines the main question of who determines identity: Ourselves or others? Approaching documentaries as highly selective versions of Truth, I examine how media images construct a desired identity for the individuals they depict. Furthermore, I explore how the constructed identity of entertainment figures within documentary media influences or is influenced by their industry status.

Because the genre lacks the objective truth it purports to have, the truths told in media and how they convey specific meanings to the audience need to be analyzed through a lens of authenticity. Since documentaries contain specific truth claims, the construction of identity and reputation must be broken down using authenticity mechanisms such as testimonials and archival footage. Documentary as a medium has grown to support pre-determined "truths" by relying on a collection of these mechanisms which present multiple versions of a given opinion. I show how, despite its purported truth-telling goals, the constructed nature of the documentary does not allow for objectivity. Using three contemporary American documentaries – "The Last Mogul: The Life and Times of Lew Wasserman", "Trumbo", and "Quiet on Set: The Dark Side of Kids TV" – this paper argues that the subjective nature of documentary media shapes the construction and status of the individual in culture, society, and the media industry. Because documentary functions as an archive of memory, preserving selective pieces, these documentaries can transmit their meanings to collective memory, enabling their incorporation into perceptions of history as a result.

The Impact of Alcohol-Related Consequences on Mood in First-Year College Students
Isabella Chhina

Heavy alcohol consumption among first-year college students remains a significant public health concern. College student drinking is associated with a range of negative consequences, including academic struggles, social challenges, accidental injuries, and long-term mental health issues. While prior research has examined the relationship between mood and alcohol use, limited studies have explored whether changes in mood are driven by alcohol-related consequences rather than alcohol itself. The current study aims to address this gap by examining how consequences independently predict changes in mood among first-year college students. Participants were recruited to participate in a larger intervention study. The analytic sample consisted only of participants who reported any alcohol use during the summer months pre-matriculation (T1) (N=355). Participants completed surveys that included items assessing demographics, alcohol use, consequences, and mood at T1 and then again at 6 (T2) and 9 months (T3) post-baseline. To test whether consequences influenced subsequent mood, we conducted a cross-lagged model assessing the effects of alcohol use, consequences, and mood on each other over time. Results revealed that T1 consequences were significantly associated with greater negative mood at T2, which, in turn, predicted greater negative mood at T3. Alcohol use did not significantly affect mood, nor was mood found to significantly affect alcohol use. These findings suggest that among pre-matriculation drinkers, consequences can have effects on subsequent negative mood. Future studies are needed to determine the more immediate effects of consequences on mood (e.g., the next day) and whether different categories of consequences have differential effects (e.g., academic).

The Impact of Religious Affiliation and Discrimination Experiences on Arab American Integration and Foreign Policy Attitudes
Seema Kayali

This paper examines the relationship between Christian and Muslim Arab Americans' religiosity, experiences of discrimination, integration, and foreign policy attitudes among Arab Americans in the post-9/11 era. Using survey data from 500 Arab Americans across all 50 states, the study analyzes how religiosity and discrimination affect Arab Americans' desire to integrate into U.S. society and their views on U.S. foreign policy, particularly regarding the Palestinian-Israeli conflict. I hypothesize that experiences of discrimination will be more prominent in the Muslim-Arab American experience and are anticipated to result in lower self-reported desire to integrate, also expressing greater disagreement with

U.S. foreign policy towards Israel. Additionally, I predict that Christian Arab Americans may face less discrimination and as a result have an easier time integrating but despite this, their concern for the Palestine-Israel conflict "back home" will be just as pressing as their Muslim Arab American counterparts. By exploring these interconnections, the study aims to provide a nuanced understanding of Arab American identity formation and its impact on their political attitudes. The findings have important implications for policymakers, scholars, and community leaders seeking to address the challenges faced by Arab Americans and understand their perspectives on both domestic and international issues. This research contributes to filling a gap in the literature by focusing on the post-9/11 context and examining the interplay between ethnicity, cultural integration, and foreign policy preferences among both Christian and Muslim Arab Americans.

Impact of Storms and Wave Action on Sand Accumulation in a Newly Restored Dune
Key Lige, Alexandra Tower

Coastal dune ecosystems are understudied, particularly in urban restoration sites, with limited research on early-stage dune formation. These dunes not only protect against rising sea levels and storm surges but also provide habitat and food sources for wildlife. This study examines sand accumulation at a recently restored dune site near the Santa Monica Pier, where native vegetation was planted in 2023. Sand deposition will be measured across four transect points: two on the foredune (closer to the shoreline) and two on the backdune (farther from the water). LiDAR (Light Detection and Ranging) scans taken in February, March, and April 2025 will be compared with earlier scans to track changes in elevation and deposition. GIS (Geographic Information Systems) will be used to create 3D models of the dunes, allowing for spatial analysis of sand movement. It is expected that the backdune will accumulate sand more consistently due to its sheltered position, while the foredune will experience more variability from wave action and storms. Understanding these patterns will help assess the effectiveness of urban dune restoration in stabilizing coastal environments and improving long-term resilience.

Individuals with Disabilities' Treatment by the LAPD
Garrett Howard-Jimenez

First responders must prioritize listening to the unique needs of all communities, offering culturally competent care and addressing challenges faced by vulnerable populations to ensure every Angeleno receives the appropriate support. This study examines if individuals with disabilities or medical conditions in Los Angeles feel the LAPD adequately listens to their needs. Residents' attitudes will be analyzed by identifying trends from 2022-2024 overall and by race/ethnicity. This project examines multiple years of the Angeleno Poll, a survey conducted through telephone sessions and online and face-to-face surveys, from the Center for the Study of Los Angeles located at Loyola Marymount University. Annually, opinions from 2,000 adults living in Los Angeles County were collected with a margin of error of ±3% for the entire sample. From 2022 to 2024, negative sentiment among individuals with disabilities increased by 13%, while negative sentiment decreased by 3% for those without disabilities. Among individuals in racial/ethnic groups with disabilities, negative sentiment rose by 17% for Latina/os, 4% for White respondents, and 1% for Black respondents (within the margin of error). In contrast, Asian respondents with disabilities saw a 4% decrease in negative sentiment. The findings reveal a rising trend since 2022 in the number of Angelenos with disabilities, particularly Latina/os, who feel the LAPD is failing to adequately listen to their community's needs. It is crucial for the LAPD to improve its efforts in engaging and listening to the disabled community to reverse this troubling trend and build trust moving forward.

Interaction of RGG-motif peptides with MYC promoter G-quadruplex

Reese McNally, Alexandra De Anda, Elizabeth Camberos, Nimrat Sran, Jack Stanley, Zoe Castanon

G-quadruplexes are secondary structures of DNA consisting of two or more stacks of G-tetrads – square planar structures consisting of four guanine bases associated together through Hoogsteen hydrogen bonds. The quadruplex structure can occur naturally in G-rich sequences and has been identified to be abundant in telomeres and promoter regions. Proteins and ligands can bind to G-quadruplexes, stabilizing DNA and RNA, and inhibit or promote replication, transcription, and translation. As these structures are linked to such diverse functions, understanding how proteins can bind and effect stability of the G-quadruplex structure has garnered significant attention. The MYC oncogene, overexpressed in a wide variety of cancers, plays a key role in cancer progression and contains a quadruplex motif in its promoter region. The G-quadruplex structure (G4) that forms in the MYC promoter functions as a transcriptional repressor element pointing to these structures as therapeutic targets to downregulate transcription. Arginine-glycine (RGG) rich domains have been found in many G-quadruplex binding proteins and have shown to contribute to G4-binding affinity. The goal of our research is to evaluate the binding affinity of RGG-motif peptides on MYC promoter G-quadruplex structures and their effect on quadruplex integrity. Two RGG rich peptide sequences present in DDX5, a DEAD-box RNA helicase, were studied. Binding constants were measured using fluorescent-tagged DNA while G-quadruplex integrity and unfolding kinetics were measured through the use of circular dichroism (CD) spectroscopy. Only one RGG peptide sequence from DDX5 was found to bind quadruplex DNA efficiently and unfold the quadruplex structure.

Interest in Cancer Screening, Cancer Beliefs, and Competing Concerns of Transportation, Housing, and Food Security among Hispanic/Latina women in the United States: Insights from the 2022 Health Information National Trends Survey

Brandon Dona-Velazquez

Background: Hispanic/Latina women face significant cancer-related health disparities. Early detection through cancer screening is effective at reducing cancer incidence and mortality, and research on psychological and socioecological factors that predict interest in cancer screening among Hispanic/Latina women is needed. Purpose: Using the 2022 Health Information National Trends Survey (HINTS), we tested whether competing concerns (e.g., lack of transportation, housing insecurity, food insecurity) and attitudes towards cancer prevention progress as predictors of interest in cancer screening among Hispanic/Latina women. Method: We conducted two separate multivariate linear regressions on subsamples of Hispanic/Latina women in the age range for 1) breast cancer screening (aged 40-74; n=208) and 2) for cervical cancer screening (aged 21-65; n=290) to test competing concerns (transportation, housing, food insecurity) and attitudes toward cancer prevention progress as predictors of cancer screening interest. Results: Higher competing concerns was associated significantly with higher interest in cancer screening among the breast cancer screening-eligible subsample (b=0.74, SE=0.36, p=0.45), but not the cervical cancer screening-eligible subsample (b=0.39, SE=0.32, p=.231). Beliefs in cancer prevention progress were not associated with cancer screening interest in either subsample (ps > .271). Conclusion: Whereas prior research has identified competing concerns as barriers to engaging in screening, these findings suggest that the barriers identified in past studies may be more behavioral or structural in nature (rather than attitudinal).

The Intersectionality of Sex Trafficking, Law Enforcement and Legislation: Where Are We Today and Where Do We Need To Go?
Hannah Robins

Human trafficking is a global scourge that exists on all continents, and tends to especially target vulnerable adults and children. On a macro level, sex trafficking can be attributed to structural inequalities created by globalization, capitalism, organized crime, wealth inequality, racism, and misogyny. It can also be attributed to micro level issues in local communities and individual experiences of socialization, trauma, and societal norms. While human trafficking is epidemic to the entire world, I seek to narrow my investigation to a distilled locus by reviewing past literature and conducting qualitative interviews with two law enforcement officials and a survivor of sex trafficking, and aimed to answer the research question: How effective are the current legislative policies and procedures in reducing sex trafficking, and how successful are they in identifying and assisting victims who have been sex trafficked in California? My research shows that factors such as lack of law enforcement training, distrustful relationships between law enforcement and victims, misguided legislation, and a lack of legal punitive action amongst exploiters and customers contribute to increased rates of sex trafficking. Meanwhile, assistance to trafficked victims remains scarce and underutilized.

Investigating the Excited State Proton Transfer Reaction in Isoquinolines
Megan Warner, Olivia Kelleher

Investigating the Excited State Proton Transfer Reaction in Isoquinolines Megan Warner, J. Ryan Hunt Isoquinolines are photobases that have a higher pKa after absorbing light and can be used to "turn off" or "turn on" proton transfer reactions. The photobase excited state proton transfer (ESPT) reaction in 6-R-isoquinolines and methoxyisoquinoline was investigated. Thermoscientific GENESYS 180 was used to collect absorbance spectra while Horiba FluoroMax Spectrofluorometer was used to collect emission spectra. The average method and intersection method were used to determine the E00 values for the base and acid forms to then determine the pKa values. In 6-R-isoquinolines the pKa values determined by the average method were compared to para-Hammett constants. When the substituent had a negative para
Hammett constant and was electron donating a slight decrease in pKa values was observed. While when the substituent had a positive constant and was electron withdrawing a significant decrease in pKa values was observed. The addition of substituent in the 6-position decreases the pKa. In the substituent position of methoxyisoquinolines the pKa values were determined by the average and intersection method with both methods giving similar results. Positions 4, 6, 7, and 8 were observed with there being a big difference between pKa at the 4th position and the 8th position, 2.9 to 9.2. Therefore, pKa is highly dependent on substituent position. In future studies the other positions of methoxyisoquinolines are to be measured, observed, and compared to the already determined positions.

Investigation and Characterization of Plant Growth Promoting Rhizobacteria (PGPR) of California Native Plants
Gabriella O'Brien

This research seeks to investigate Plant Growth Promoting Rhizobacteria (PGPR) to enhance plant growth and strengthen the Los Angeles dunes amid climate-driven coastal erosion. PGPR assists in plant growth through enhancing root expansion, shoot lengthening, and increasing nutrient uptake. In testing plant growth under various environmental conditions with the addition of PGPR, the goal was to measure

plant growth and observe the influence PGPR plays in hindering or encouraging plant growth. My methods consisted of a seed germination assay, a PGPR properties confirmation, and bacterial isolate identification. These assays identified certain bacterial strains that allowed for plant growth under certain conditions, along with confirming their identities. The PGPR properties confirmation highlighted the Priestia and Pantoea genera for presenting the most positive results for nitrogen fixation, phosphate solubilization, salt tolerance, and cellulase production. The strain Pseudomonas fredericksbergensis was the only strain that promoted primrose plant growth under high saline conditions. Future research will consist of testing Priestia, Pantoea, and Pseudomonas strains under similar conditions to further understand and analyze the effects of PGPR on plant growth under adverse conditions. This research is crucial in order to preserve the Los Angeles Dunes from erosion, which ultimately protects the coastlines and shores from weather conditions. Understanding the most beneficial strains to increase plant growth allow for accurate coastal restoration that will provide the strongest dunes possible.

An Investigation into the relationship between testosterone and nest defense in Great Black-backed Gulls (Larus marinus) throughout the breeding season
Frances Dygean

Hormones mediate aspects of behavior and physiology across avian taxa. Although the link between testosterone and aggression has been well-documented in several avian species and testosterone fluctuations have been observed throughout the breeding season, this remains understudied in the Great Black-backed Gull (Larus marinus). In our study, we used excreta (fecal and urinary waste) samples to quantify testosterone levels and compared them to nest defense behaviors throughout the breeding season. Currently, a preliminary analysis comparing average gull aggression and testosterone levels, performed on samples from 2019, 2021, and 2022 (N=190) has demonstrated that testosterone likely mediates aggression in this species. Following this analysis, we will be embarking on investigating the potential temporal variation in testosterone and nest defense behavior relative to the date at which eggs hatched. Additionally, our ongoing efforts include genetically determining sex so that this can also be factored into our analyses. Ultimately, this project aims to assess the fluctuation of testosterone and mating aggression of the Great Black-backed Gull during their breeding season to determine whether the patterns in gulls are similar to those of other avian species.

A Journey of Stardom to Self-Discovery: An Analysis of How Gwyneth Paltrow Exemplifies a Growth Mindset
Alexandra Thompson

A growth mindset, as conceptualized by Carol Dweck, posits that individuals can develop their abilities through sustained effort and experience, irrespective of initial talents or aptitudes. This paper explores how Gwyneth Paltrow's transition from actress to CEO illustrates the intersection of growth mindset principles and Daoist approaches to personal development. Her lifestyle brand goop formed the foundation of her entry into the wellness sector, and her handling of criticism as a CEO reflects core growth mindset values. In interviews, she describes separating personal and professional endeavors while remaining open to potentially hurtful feedback, treating it as an opportunity for ongoing learning. In her philanthropic work, she puts into practice the Daoist emphasis on living in harmony with "the Way," mirroring a growth mindset. Her activism, as shown by her involvement with the Bruce Paltrow Oral Cancer Fund and the Robin Hood Foundation, demonstrates a commitment to important social issues and a pursuit of collective well-being. Drawing on both scholarly articles and popular sources, this research links growth mindset and Daoist philosophy to Paltrow's biographical and professional

background. The findings indicate that her perspective on criticism and mistakes contributes to success in her professional, personal, and philanthropic endeavors.

Latinos & Rhetoric: Unraveling the Diverse Reactions to Xenophobia
Pablo Anleu Calvo

The 2024 U.S. presidential election revealed a significant shift in Latino voter behavior, with increased support for Donald Trump despite instances of xenophobic rhetoric directed at Latinx communities. This moment highlights the complexity of the Latino electorate, nearly 20 percent of the U.S. population, and raises questions about how xenophobic messaging influences their political choices. While current literature acknowledges Latino voters as diverse and shaped by economic, ideological, and cultural concerns, less is understood about how exposure to xenophobic rhetoric impacts political alignment and identity among subgroups within the Latino community. This study addresses this gap by examining how xenophobic messaging affects political behavior and group identity, focusing on concepts like proximity-to-whiteness efficacy and social belonging. Analyzing data from a survey conducted post-election, we explore responses to varying levels of xenophobic rhetoric and its impact on affiliation, policy support, and engagement.

Life Expectancy Predictive Model
Naomi Alvarado, Cameron Hajaliloo, Jaeden Rothrock

The World Health Organization (WHO) found that average life expectancy has increased by over 6 years in the last two decades. However, this begs the question - how do we continue this trend? This project explores whether external indicators can consistently predict a country's average life expectancy. Using a subset of indicators from the WHO's World Health Annual Statistics Report, we built a model to predict life expectancy across countries in 2002. First, we conducted model selection to identify the best subset of predictors for life expectancy. Then, we performed model adequacy checking to ensure all model assumptions were satisfied. Furthermore, we extensively analyzed potential influence points and their impact on our model. Our final model included percentage of expenditure, average adult BMI, number of reported cases of HIV/AIDs, number of reported cases of polio, and income resource composition as predictors of life expectancy. This model explained 84% of the variability in life expectancy, leaving only 16% as unexplained error. Other additional metrics were used to check the bias and complexity of our model. A significant takeaway from our findings is that traceable features, commonly reported on through the World Health Organization, are valuable predictors of life expectancy. This information could better advise policymakers, first responders, and human rights activists, allowing for more proactive approaches to protecting human life.

Limonium perezii: a model system for investigating foliar water uptake
Ryan Seifi

Limonium perezii (Stapf) Hubb., a subshrub native to foggy areas of the Canary Islands, has leaves that develop in a rosette pattern, with nonsessile laminae attached to the stem by proximally winged petioles — a morphology aligning with the growth form of many species heavily reliant on foliar water uptake (FWU) as a water source. FWU, water retention of the leaf surface, and hydrophobicity were quantified for immature and fully expanded mature leaves. The very hydrophilic immature leaves (θ 55^0) mature leaves ($P < 0.05$). For both stages of leaf development, FWU was greatest from liquid water. The hydrophilic nature of the immature leaves increases the likelihood of a film of liquid water forming on

these surfaces. Their lower water retention, which decreases as droplet size increases, may further enhance water spread on the leaf lamina, petiole, as well as into the leaf axil—another possible site of FWU. Potential pathways of FWU into the lamina via salt glands, stomata, and stomatal primordia were identified in both mature and immature leaves using silver nitrate as a tracer. The salt gland is a newly confirmed route for FWU suggesting a bidirectional function for this structure the role of which in water and salt stress is currently being researched. The contributions of leaf surface characteristics and FWU in supporting the growth of especially immature leaves and leaves under stress are discussed.

A Long-Term Assessment of Partitioned States
Christopher Kramer

Partition as a solution to civil wars is particularly relevant today because of the increased number of intra-state wars internationally. Often, it does not instill peace but creates more conflict. The literature fails to answer why a side fares better than its opponent following its partition. To improve upon other studies, I examine whether actors who ultimately get secession achieve more democratic, economic, and social stability than their opponents. I hypothesize that whatever side can build up the best political, social, and economic institutions will thrive the most following a partition/secession. This study analyzes the overarching conditions in the rump and secessionist state after the conflict ended. Examining Sudan/South Sudan and Ethiopia/Eritrea demonstrates why some African states can become stronger than others following a partition. The case study found that nations that already had strong internal structures or dedicated more resources to building economic, political, and social institutions in post-conflict states saw more rapid advances in development and were able to surpass their opponents. This is important to international relations since it informs us what institutions are valuable to the process of state building in post-partition states.

Loss of the Saccharomyces cerevisiae [2Fe-2S] mitochondrial protein Aim32 leads to unbalanced protein synthesis
Shreshta Kode, Sophie Menendez

The mitochondrial genome encodes proteins of the oxidative phosphorylation (OXPHOS) system. Coordinated expression of these genes ensures the correct stoichiometry of the system's components. A concerted integration of ~250 components associated in higher-order complexes named MIOREX (mitochondrial organization of gene expression), is required for proper mitochondrial gene expression, not all of which are known or characterized, and some have multiple functions. Finally, the synthesis of several proteins of the OXPHOS system is facilitated by specialized mitochondrial ribosomes. Aim32, a member of the thioredoxin super-family is a constituent of the MIOREX complex. However, its specific role in mitochondrial gene expression is unknown. Here we show that loss of Aim32 in S. cerevisiae does not abolish mitochondrial translation but rather causes an imbalance in protein production: expression of Cox1 and Cox3, subunits of the cytochrome c oxidase (complex IV) is decreased with affiliated reductions in mitochondrial respiration. We found that Aim32 interacts with Mam33, a known Cox1 translational activator, and several yeast mitochondrial ribosomal proteins (MRPs) in vivo. Using sucrose gradient sedimentation to assess mitoribosome integrity, we found that distribution of MRPs was altered in AIM32 null cells suggesting an additional role for it in mitoribosome biogenesis. Funding for these studies was facilitated by the William McLauglin endowment grant (LMU Biology) and NIH AREA grant 2R15GM134451 awarded to DVD.

"Man-Dig those crazy Los Angeles Freeways": The changing image of Southern California Freeways in The Werner von Boltenstern Postcard Collection

Laura Haushalter

My research explores the image and lore of Southern California freeways as displayed on 20th and 21st century postcards in The Werner von Boltenstern Postcard Collection. This archive of over one million postcards, held in Special Collections at the William H. Hannon Library at Loyola Marymount University in Los Angeles, California, is one of the largest publicly accessible collections of postcards in the United States. My research into hundreds of postcards reveals their portrayal of Southern California freeways as wonderful, novel, efficient, and a magnificent feat of man-made engineering. At the same time, the freeway postcards' personal messages also show us the frustration and dissatisfaction experienced by some mid-twentieth-century visitors. These messages contradict the proclaimed magnificence and celebration of modern urban progress on the very postcard description and image itself. Drawing primarily on original archival research of primary sources, this project combines academic scholarship on freeways and postcards. My research fits into the larger historical narrative of freeways as part of the built landscape of Southern California and as an environmental justice issue, as scholars have more recently understood them. The image of freeways produced and sold on the postcards is different from the reality Southern Californians face today. Freeways do not provide ease and uninterrupted travel, like these postcards suggest, and instead are places of traffic, congestion, and pollution. Freeways continue to be an environmental hazard and physical barrier that fractures communities.

The Margins of the Manosphere

Maya King

The United States has seen a widening gap in gender gap and the start of gender wars much of which are waged by white cishet society, which has felt victimized by the current structure of society, and thus developed a feedback loop of media that affirms this idealized sentiment of intrinsic flaws within the current system disadvantaging male society. This phenomenon is not only limited to the fascist regime of the alt-right or MAGA supporters but extends broadly as it appeals to a range of men from various backgrounds through the dissemination of information through media platforms. Podcasters and YouTubers such as Andrew Tate, Joe Rogan, Kai Cenat, Theo Von, and countless more content creators, while ranging in different content, enrich a cryptofascist mindset supported by male audiences who have bought into the narrative of their own victimization and systemic disadvantage accustomed to neoliberal pandering to marginal audiences. This content, widely consumed by vulnerable male populations mindlessly scapegoats "woke" or "DEI" initiatives for placing the needs of women, immigrants, and queer populations as most urgent neglecting who they believe to be warranted consideration and privilege. The manosphere has been weaponized as a means to counter what they believe to be a broken society that has over-concerned themselves with the needs of those most vulnerable and thus cast aside men. These men however have shown to have declining mental health, and disadvantageous socio-economic placing and thus felt rightfully marginalized however further aligned themselves with the margins as they have increasingly alienated themselves from their loved ones and the public. This is a significant issue as its immediacy is directly linked to the eruption of gendered violence as well as its ability to continue the suffering of both men and women in society by further fragmenting and alienating various demographics. Many families have been broken due to the ideology generated through the manosphere and the mental and physical wellbeing of these men and those around them is alarmingly challenged. This issue, while widespread in its urgency, is immediate within the US as seen through its ability to form politics, fuel geopolitical unrest, and pioneer neo-fascist ploys. Much research on the

manosphere has drastically unacknowledged the growing popularity of content amongst black men, further broadening the lens through which the issue is understood. By developing a body of knowledge of the subject and research the outcome of this campaign is to humanize the voices and audiences of manosphere content and disseminate the importance of outreach to these groups.

Masala Minds: The Spice of Neurodivergence in Indian Communities
Ananya Desai

This qualitative study explores the lived experiences of Indian American college students with ADHD and/or ASD, by investigating the complex relationship between cultural expectations and neurodivergent identities. This study aims to understand the influence Indian culture has on the mental health and wellbeing of Indian American college students with ADHD and/or ASD. The research uncovers three critical themes through in-depth, semi-structured interviews with 5 participants between the ages of 18-22. First, academic performance pressures create a consuming environment where personal worth becomes intrinsically linked to educational achievement. Participants described an intense cultural narrative that prioritizes academic success above individual well-being, often ignoring their unique challenges or experiences. The second theme is the presence of mental health stigma characterized by a cultural reluctance to acknowledge mental health and neurodevelopmental conditions. This overall cultural and familial silence creates significant barriers to understanding their experiences and providing individualized support. The third theme illuminates profound cultural misconceptions about neurodivergence. Participants frequently encountered dismissive attitudes that reframed their experiences as personal weaknesses or temporary challenges to be overcome through willpower, which fundamentally misunderstands the neurological basis of these disorders. This perspective not only invalidates individual experiences but also delays critical interventions and support. These findings are centered at the narratives of Indian American college students with ADHD/ASD. Therefore, this study provides nuanced insights into the intersection of cultural expectations, mental health, and neurodivergent identities. The findings highlight the need for culturally sensitive approaches that recognize and validate the complex experiences of neurodivergent individuals within specific cultural contexts.

Measuring Frameshift Efficiency of SARS CoV-2 Frameshift Site Using Dual Fluorescence Reporter Proteins
Marisa Gomez

SARS-CoV-2, or the virus that causes COVID-19 disease, is a coronavirus that uses a programmed -1 ribosomal frameshift site to promote the replication of the virus. Prior research in the Mouzakis Lab has focused on the HTLV-1 (Human T-cell leukemia) virus to determine how the frameshift site RNA structures promote the replication of the virus. A related, collaborative project on SARS-CoV-2 was also started in 2020. Both projects employ a dual-luciferase assay as its singular approach to measuring the frameshift efficiency. Consequently, my aim is to assess the frameshift efficiency using a complementary and more economical technique. The results of which can be compared to past findings in the lab for SARS-CoV-2 that used the dual-luciferase approach. I will be utilizing dual fluorescence reporter proteins to measure the frameshift efficiency of the SARS-CoV-2 virus in vitro, and comparing it to the frameshift efficiency determined through both the dual-luciferase assay, measured by our lab, and the in vivo technique previously published by a different lab. Ultimately, the identification of a complementary technique to measure frameshift efficiency provides us with the potential to adapt and apply it to various frameshift sites in different viruses.

Memories of the Holocaust in Jewish-Greek Poetry
Tanya Rasheesa

My paper focuses on memories of the Holocaust in modern Jewish-Greek poetry. Thessaloniki (Salonica), a city located in Northern Greece, lost about 98 percent of its Jewish population after the events of World War II. Many survivors from the Holocaust in Thessaloniki wrote poetry later on in their lives reflecting on the atrocities that they both witnessed and directly experienced during the war. My paper is divided into three sections: the historical background, a close reading on selected poetry, and critical analysis based on existing scholarship. In my paper, I unpack the history of Jewish immigration to Thessaloniki and the Nazi German occupation in Greece. I examine how different Holocaust survivors from Thessaloniki grapple and reshape their trauma through art, and more specifically through poetry. I analyze the works of poets such as Bouena Sarfatty, Mosh Ha-Elion, and Yehuda Haim Perahia. Most of their poems were originally written in Ladino, a language derived from Old Spanish spoken by Sephardic Jews and it was once the most spoken language in Thessaloniki. I examine how survivors reflect on their past experiences and memorialize the lives lost during the Holocaust, but also how their different identities — Sephardic, Jewish, and Greek — manifest in their poetry.

Money as a Precondition of Being Human
Tyler Matsumoto

It is commonly said and widely accepted that "money is the root of all evil," but this phrase fails to give any credit to the crucial role money plays in our lives. In fact, money does not just make day-to-day life more convenient, but it is, in fact, necessary to being human at all. Aristotle argues, in Politics, that reaching a level of self-sufficiency, that is having the necessary preconditions for virtuous activity, is necessary but not sufficient for becoming happy, the end of human life. This means to be at least minimally human, one should at least have the potency to be happy, meaning one must be at least potentially self-sufficient. However, self-sufficiency is only achievable through being a part of a city, as a city is the only form of community that can provide the necessary external goods that allow people to flourish. This is because the other, lower forms of community do not have the diversity needed to provide the diverse goods required for self-sufficiency. So, the city, in being a diverse community, requires money so there can be proportional reciprocity in exchanges, for the baker and builder would have no way of exchanging goods equally without some common means of exchange. So, despite money being seemingly disconnected from being human, I will argue that money, while not existing by nature, is a precondition to being human.

Navigating Gastrointestinal Distress Among Undergraduate Students
Ava Nariman

College is a transformative period marked by increased independence and the need to navigate various responsibilities, including academic demands, extracurricular involvement, employment, social engagements, and daily responsibilities. The challenges associated with financial insecurity and limited time management skills can contribute to heightened stress and anxiety among students. This study employs a qualitative approach to examine the interplay between socioeconomic well-being, anxiety, and stress in relation to gastrointestinal symptoms, as experienced by college students. That is, to answer the following research questions: to what extent do anxiety and stress relate to frequency of GI discomfort? What challenges and/or barriers to access to resources inhibit one's ability to cope with stress and anxiety? Through semi-structured interviews with four female college students, three key

themes emerged: (1) the impact of stress, (2) accessibility barriers to healthy living, and (3) seeking and finding support. These findings underscore the connection between mental and physical health, emphasizing risk factors associated with financial and structural barriers linked to socioeconomic status, as well as protective factors tied to proactive health-seeking behaviors.

A New Fourth Estate?: How Different Forms of News Consumption Affects Political Knowledge
Farrah Padilla

Coverage of the 2024 U.S presidential election drew the attention of millions of Americans across a variety of media outlets. Social media and traditional news outlets both contain an enormous amount and variation of information that is readily made available to the public. This project aims to investigate how different forms of media usage affect what people know and think about the world around them. Previous literature suggests that there are certain ways in which the media influences how people develop their opinions and political behavior. In light of the digital age, there has also been research attempting to investigate how the changing world of news coverage affects America's body politic. Less has been studied about the effects of news on political knowledge. Additionally, past analyses on political knowledge have been limited to questions that focus on basic civic and governmental knowledge. To bridge the gap in understanding political knowledge, this project explores the role of traditional vs. social media on what people know about conventional and unconventional politics. I collect original survey data through an online survey on Prolific to examine the extent to which traditional and non-traditional media influence different types of political knowledge.

NEUROADAPTATIONS IN THE PRIMARY MOTOR CORTEX MAY DEVELOP IN INDIVIDUALS FOLLOWING ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTIVE SURGERY
Haley Huntington, Christine E. Phelps, Anika Khurana, Louis Y. Wang, Camryn Felipe

Following anterior cruciate ligament reconstruction, individuals often experience quadriceps dysfunction, potentially linked to increased corticospinal tract excitability. However, the role of motor cortex neuroadaptations in persistent quadriceps strength deficits remains unclear. PURPOSE: To investigate brain activation patterns during a force reproduction task using transcranial magnetic stimulation (TMS) in ACLR patients (ACLR) compared to healthy controls (CONT). METHODS: Electrocortical activation of 16 ACLR (10F and 6M, 20.0±1.2yrs, 171.9±7.2cm, 75.8±17.1kg) and 16 CONT (10F and 6M, 20.6±1.4yrs, 168.0±9.9cm, 66.3±11.0kg) was measured using a 64-channel EEG system during an isometric force reproduction task. Sixty TMS pulses (120% and 140% active motor threshold) were delivered to the primary motor cortex while participants maintained 10% of quadriceps maximal voluntary isometric contraction (QMVIC). Motor evoked torque (MET, %), normalized to 100% TMS intensity, was measured to assess neuroadaptation in the corticospinal tract. EEG data was processed to compute P30 (11-45ms), N45 (26-65ms), P60 (46-80ms), N100 (80-200ms), and P200 (160-300ms) event-related potentials (ERPs, μV) at three regions of interest (ROI): the motor (ROI1), parietal (ROI2), and frontal (ROI3) cortices. ERP and MET comparisons were conducted using independent t-tests. RESULTS: Significant differences were found in ERP P200 peak power at the ROI1 ($p=0.044$), with lower power in ACLR (2.38±2.79μV) than CONT (6.44±4.93μV). Additionally, the ACLR group (188.97±85.94%) exhibited a significantly greater MET than CONT (90.08±39.63%, $p=0.0002$). CONCLUSION: Lower ERP amplitude at ROI1 suggests motor cortex inhibition, while heightened MET in ACLR suggests corticospinal excitation. These findings suggest that reduced brain activation and corticospinal hyperactivation may contribute to quadriceps sensitivity and persistent strength deficits, potentially increasing re-injury risk.

Novel Design of an Autonomous Vehicle for Sewage Drain Measurement of Harmful Pollutants
Robert Stanley, Joseph Douille, Gonzalo Gonzalez

Runoff is a leading source of water pollution in the United States and urban areas. This is due to the large amounts of pavement that can efficiently gather contaminants for runoff. With current sampling methods, it is difficult to actively collect water samples in different areas to measure pollutants (i.e. heavy metals, nitrogen, etc.) that can harm aquatic life and cause deadly algal blooms to fish. Current urban sewer systems are complex and difficult to access on foot, therefore it is critical to create new sampling methods that can be remote controlled into sewers, collect water samples, and bring them back for testing in a lab. Few robotic devices are currently used to collect water samples, but using one can be ideal for the difficult challenges that are at hand, especially with the size constraint of many sewer systems not allowing humans to enter and collect samples easily. Designing and building a robot that is durable and waterproof is necessary to test between different urban locations to collect samples that can be used to gain data in which water pollution from runoff is highest. Testing will occur in two different urban locations in the Los Angeles area that empty into the ocean. By using this device it will become easier to understand the locations of pollutant levels and sewer paths that are more significantly affected with water pollution and surface runoff, especially those that flow into the ocean that can harm aquatic ecosystems.

Older chicks get better food: An analysis of isotope ratios in Great Black-backed Gulls
Taleen Madikians, Sofia Carranza, Jacqui Raetz-Vigon, and Dr. Kristen Covino

Great Black-backed Gulls (Larus marinus) are relatively understudied, especially in terms of their intraspecific variation in dietary preferences. Our project's overall goal is to quantify differences in diet across individual Great Black-backed Gulls via stable isotope analysis. Isotope ratios from feathers provide information about the trophic level (nitrogen ratios) and food sources (terrestrial/marine; carbon). Our initial results from pre-fledgling chicks indicate that most individuals primarily consume marine and high trophic-level foods. Pre-fledglings from the same nest had similar feather carbon isotope ratios, regardless of hatch order. However, nitrogen ratios were lower for C chicks (last-to-hatch) compared to A chicks (first-to-hatch), indicating C chicks consumed lower trophic-level foods. We are working to investigate this pattern further by comparing isotope ratios within and across broods and between chicks and their parents. With this information, we will better understand the diet of this declining species.

Osmotic Performance of Mytilus Galloprovincialis Under Chronic Hyposalinity Stress
Hayden Washington

Climate change (CC) increases precipitation which leads to a change in ocean salinity. Marine mussels, like the species Mytilus galloprovincialis, serve as biological indicators of ecosystem health. Understanding mussel metabolic responses (i.e., how much oxygen the mussel is expending under stress) could aid in our understanding of the potential impacts of CC and hyposalinity stress on marine animals. Our objective was to determine the effect of chronic osmotic stress on the metabolic performance of M. galloprovincialis sampled from two sites, Marina Del Rey (MDR) and Ballona Creek (BC), CA by exposing them to varying salinities. The two locations vary in salinity and therefore, we expect mussels from more variable salinity environments (BC) to be more tolerant to chronic osmotic stress compared to mussels from less variables environments (MDR). Mussels were collected from MDR

and BC, exposed to chronic salinity stress for 14 days (5, 15, 25, 35 ppt), and metabolic rate was determined following exposure. MDR and BC mussels demonstrated similar osmotic performances and an increasing metabolic rate was observed with increasing exposure time under 15, 25, and 35 ppt as mussels acclimated to the salinity treatment. The lowest metabolism was recorded at 5 ppt indicative of stress and poor performance. Ultimately, our study suggests that M. galloprovincialis mussels are able to withstand extended exposure to salinities ranging from 35-15 ppt with the lower limit being exposure to 5 ppt. This result could be due to metabolic depression or valve closure at lower salinities, which ultimately decreased their metabolism.

Osmotic performance of the mussel Mytilus galloprovincialis across increasing salinities
Alyssa Rodriguez

Climate change is a major contributor to causing drastic changes in ocean salinity, temperatures, and acidification. Mussels like the species, Mytilus galloprovincialis, act as biological indicators of environmental changes and studying effects of abiotic stress (i.e., heat, salinity) on mussel metabolic rate provides a metric for understanding changes in energy demand under stress. Climate change is predicted to increase precipitation rates which may alter seawater salinity exposing mussels to hyposalinity. However, there is little information about the osmotic stress tolerance of M. galloprovincialis in the face of climate change. Thus, the goal of this study was to determine the effect of variable salinity on the metabolic rate of M. galloprovincialis from two different sites as a predictor of climate change effects on marine invertebrates. Mussels (N = 300) were collected from Marina Del Rey and Ballona Creek, CA and exposed to 7 days of salinity stress (ranging from 5-40 ppt). Metabolic rate was measured following stress exposure and an osmotic performance curve was developed across all tested salinities. Results showed prime mussel metabolism at the average ocean salinity (35 ppt) and reduced metabolism under exposure to salinity extremes (5 and 40 ppt). Although Ballona Creek seawater variation is more variable than Marina del Rey, we did not identify a difference in metabolic rate between sites. Thus, our study suggests that M. galloprovincialis mussels exposed to hyposalinity will be energy limited and this may influence mussel survival under future climate change scenarios.

Pascalian Divine Hiddenness: Resisting Schellenberg's Reasonable Nonbelief
Brandon Ridgeway

What is divine hiddenness? Is divine hiddenness real, or does it indicate that God does not exist? This paper seeks to provide resistance and guidance to this heavily debated topic. A prominent figure, J. L. Schellenberg, believes divine hiddenness to be the inexistence of God. In this presentation, I will resist his controversial claim of reasonable nonbelief—beliefs that are not blameworthy because a person is inculpable in maintaining the belief. I will resist this claim employing Pascalian divine hiddenness, which ultimately states we are all culpable for our beliefs because of human volitional aversion—willful avoidance of God. This paper will lay the groundwork for both sides while presenting a robust Pascalian counter to resist Schellenberg's logical argument.

PCOS: A qualitative study on the experiences within the diagnosis and treatment of PCOS
Hannah Tate

Polycystic Ovarian Syndrome or PCOS is a chronic endocrine disorder characterized by a set of physical and emotional symptoms due to the presence of cysts on the ovaries. The disorder is long-term and can result in serious health issues if it remains untreated (Cooney & Dokras, 2018). PCOS is marked as the

most common endocrine disorder among women in their reproductive years (Azziz et al., 2016) (Amiri et al., 2014). However, despite its commonality and health effects, PCOS remains largely understudied and lacking in proper knowledge expressed by medical professionals (Dokras et al., 2017). Past findings indicate that women often face prolonged diagnostic delays, report feeling dismissed by healthcare providers, and experience significant emotional and psychological burdens related to their condition (Amiri et al., 2014). Further, participants highlighted the importance of community support and self-advocacy in managing their condition in clinical settings (Avery et al., 2020). The following study aims to address these gaps in the literature and the effects of care provider-patient interactions on the lives of women with a PCOS diagnosis. The result of the following study reflects similar findings, with parallel showings of diagnostic delays and dismissal from primary healthcare providers. Moreover, the following study concludes a lack of information regarding PCOS, with limited literature about experiences of PCOS, and gaps in the knowledge of medical and healthcare professionals in their diagnostic and treatment processes. Additionally, the following study observes an emphasis on community and the importance of discourse and sharing of information in response to a lack of information, as well as the role of alternative medicine in the individual treatment of PCOS and how women are seeking relief and care beyond traditional medicine. The experiences of women with PCOS play a critical role in the understanding of this disorder. The following study explores the experiences of women with a PCOS diagnosis by investigating their subjective experiences with symptoms, diagnosis, and treatment. This study contributes to our understanding of the patient perspective in PCOS care and suggests areas for improvement in healthcare and support systems.

Perceived Stress Modulates Blood Pressure Reactivity to Stress in College Students
Manuel Sune

Stress is an unavoidable part of everyday life that can have effects on our bodies. The psychological self-perception of stress could represent higher stress reactivity in the physiological level. High levels of stress are common in college students and it's important to manage this to prevent the risk of health problems in the future. PURPOSE: The purpose of this study is to investigate the effect of perceived stress on cardiovascular reactivity to stress in students. METHODS: Fourteen college students (n=14; f=5, m=9) participated. The Perceived Stress Scale was used to assess stress levels and the median summed score from the PSS was used to stratify the sample into low and high stress groups. Participants were then submitted to the cold pressor test (CPT) while being continuously monitored with a blood pressure monitor (FINAPRES). The protocol initiated with a 10min rest for baseline assessment, 2min with their hand immersed in cold water, finalizing with a 5min recovery period. RESULTS: There was a significant time-effect ($p<0.005$) for heart rate (HR), systolic (SBP), and diastolic blood pressure (DBP), showing that both groups responded to stress with increase in cardiovascular activity. There was also a between-group effect ($p<0.005$) for SBP, indicating a higher reactivity for the high perceived stress group. CONCLUSION: Participants with higher perceived stress presented a higher SBP reactivity, demonstrating that perceived stress may predict the stress reactivity. Future investigations should investigate this in a larger sample with greater heterogeneity of perceived stress scores and additional parameters of stress reactivity.

Persistent Financial Impacts of COVID-19 on Latino Communities in Los Angeles
Maricia Marquez

The COVID-19 pandemic has had long-lasting effects on the financial well-being of many Angelenos, with significant disparities across racial and ethnic groups. This study examines how the pandemic

continues to impact household income and financial security in Los Angeles in 2024. Data from the 2024 Angeleno Poll conducted by the Center for the Study of Los Angeles at Loyola Marymount University, which surveyed 2,011 adult residents across Los Angeles County, were analyzed. Respondents were asked to what extent the pandemic affected their household income or financial security, answering either "A great deal," "Somewhat," "Very little," or "Not at all." Data were then analyzed using the Stata SE platform. Findings revealed that Latina/o residents remain disproportionately affected: across all income levels, 72% of Latina/o respondents reported significant financial impacts—the highest among all racial and ethnic groups. Latina/o respondents differed significantly from their counterparts in terms of the extent of the impact of the pandemic on their financial well-being. For all other racial and ethnic groups, higher reported income was associated with a decreased concern about these factors, with concern levels dropping to 39%. In contrast, Latina/o residents remained consistently concerned, with their concern never falling below 51%, regardless of their reported income. These findings suggest persistent vulnerabilities for this group, likely driven by systemic inequities, income disparities, and overrepresentation in industries severely impacted by COVID-19, highlighting the need for targeted economic support and policy interventions for Latina/o communities in Los Angeles.

Photoredox Catalysis for CO2 Reduction by Investigating p-Terphenyl for Sustainable Carbon Capture and Utilization

Tram Nguyen, Anthony Zaldana

Carbon dioxide is a major contributor to climate change as it is the lead greenhouse gas that maintains heat within the atmosphere. The use of solar energy via a photocatalyst to mitigate CO2 has been and currently is an area of active research. In this work, we investigate the activity of p-terphenyl as a photoredox catalyst for the electrochemical reduction of CO2. The reduced CO2 is then "captured" via reaction with 4-fluorostyrene to form 3-(4-fluorophenyl) propionic acid. NMR spectroscopy was used to quantify the yield of the reaction and UV/Visible absorption and emission spectroscopies were used to investigate the efficiency of photocatalytic reduction. By combining these results, this study aims to provide insights into the mechanism of the catalytic cycle and to optimize the photocatalytic reaction for sustainable carbon capture and utilization.

PIT WEAR AND TEAR PART 2: INCLUDING TAPHONOMY IN OLDER DEPOSITS AT RANCHO LA BREA TAR PITS

Josiah Dallmer, Paola Lopez de Cardenas

The Rancho La Brea Tar Pits' diverse fossil deposits include the largest collection of fossils from the Late Pleistocene Epoch. Analyses of taphonomy, which is defined as the processes of bone fossilization from death to excavation, provide us with crucial information about the history of environmental conditions over time. Categories of taphonomy include weathering, abrasion, and pit wear. In this study, taphonomy of isolated elements from both large and small mammals from seven separate asphaltic deposits, Project 23 Box 1 (Box 1), pits 3, 9, 13, 77, 91, and 61/67 were measured, representing distinct time periods between 40–12,000 years before present (kya). This is the first study collecting taphonomy from Project 23, 9 and 77, and the first study that scaled pit wear at RLB. We analyzed taphonomy data from 14 mammalian species to identify trends across the seven deposits. Pit wear, weathering, and abrasion were all scored on a five point standardized scale system for comparison. We hypothesized that pit wear and abrasion would co-occur in higher rates in Box 1, as previously found in Pit 13. However, results demonstrated that while Box 1 had higher rates of pit wear, there was not the expected

accompanying high rates of abrasion. There are high levels of pit wear in Pit 13 and Box 1 relative to the other pits.

Plutarch's Representation of the Greeks to His Roman Audience in the Second Sophistic
Catarina Dantas

This research paper, which builds on the research work completed for Dr. Zacharia's class "Classical Hellenism, Race and Ethnicity." I will focus on the different aspects of Greek identity during the Second Sophistic period as represented in Plutarch's work, "Parallel Lives." I chose to focus on this topic because of my interest in the Roman relationship to the conquered Greek civilization and to the extent that Greek tradition is able to influence Rome both politically and culturally. Further, the paper will be doing a critical analysis of the lives of three different historical figures that Plutarch writes about; Cicero's, Cato the Elder's and Titus Flamininus. Henceforth analyzing Plutarch's takes and opinions and how in them we can see traces of his attempt at building some sort of identity not only to these Roman figures, but more so even for the Greeks of the time, whose habits and culture are, Plutarch implies, the ideal which others should model their actions after. For example, in the life of Cicero I will look at how he presents the intellectual Greek culture as being a positive big drive in the Roman's life, and how such an approach to life interacts with his Roman identity. In the life of Cato I will be looking at how, through both the acclamation and condemnation of the politician's actions, Plutarch vouches for the Greek model of virtue and vice to be followed. To be Greek is to have good morals, to avoid the Greek system of ethics will, as it does for Cato, lead to inevitable tragedy. In Flamininus' life, who was a Roman general acclaimed for "freeing" Greece, I will look at how Plutarch deals with the fact that Greece is in political subordination to Ancient Rome and how that affects its identity.

Poetry and Hellenism: Building the Greek Nation Through Rhyme and Verse
Tanya Rasheesa

My paper examines how poetry acts as a stimulant for political action and the role it plays in the establishment of a modern nation-state. I argue that poetry is not only the intellectual ideology for political action, but a vessel for activists to turn their ideas into action, especially in nationalist movements. I focus on the case of Lord Byron, who is known mainly as a literary poet in the English-speaking world, but a martyr and national hero in Greece. Byron's contribution to the cause for Greek independence from the Ottoman Empire helped Greek nationalists reach their ultimate victory. I argue that part of Byron's contribution, aside from raising monetary funds, is his poetry. Men went to fight for Greece as a direct result of reading Byron's poetry, which resulted in a distinct type of Philhellene, known as the "romantic Byronist." These men were willing to fight in the revolutionary war and die for Greece simply after reading Byron's poetry about Greece. I examine how the ancient Greek idea of sacrifice, heroic valor, and dying for one's freedom evident in Pericles' Funeral Oration recorded in Thucydides' History in 429 BCE can also be seen in Byron's poetry. I also argue how Lord Byron's poetry propagates the idea of discontinuity of the Hellenic tradition, and that modern Greece has fallen short of its ancient glory, which relates to the Orientalist attitudes evident in his poetry. I also examine Odysseas Elytis' poetry, juxtaposing it with Byron's poetry and how Elytis' poetry instead promotes the idea of continuity of the Hellenic tradition. I look at excerpts from his Axion Esti (1959), analyzing how the contemporary Greek consciousness can be identified with its predecessors in the Greek literary tradition.

Policing and Community Relations: Artificial Intelligence
Francesca Lovato

The role of artificial intelligence (AI) has expanded significantly over the past year as evidence by increased adaptation in local contexts such as policing. In Los Angeles, we see the Los Angeles Police Department (LAPD) have a growing usage of AI, whether that be for investigative purposes or the use of new or different technologies. This research examines data from the 2024 Police and Community Relations Survey conducted by the Center for the Study of Los Angeles at Loyola Marymount University, which queries 1,756 residents in the city of Los Angeles on a variety of issues around policing. Angelenos have varying levels of comfortability with the kind of AI that is relied on by the LAPD as it can take more than just one form, such as: facial recognition, drones, assisting officers with the writing of their reports, robotic dogs, and the analyzation of data to make predictions about crime patterns. Data are analyzed by race and ethnicity and are examined using Geographic Information Systems (GIS). Results show that Angelenos are generally comfortable with the LAPD relying on AI. However, a slight majority (51.7%) voiced their discomfort with the idea of LAPD's reliance on robotic dogs. By race and ethnicity, white and Black respondents were not as comfortable with the use of drones while Asian and Latina/o respondents were seemingly more accepting. These results show a positive response in the adaptation of AI in areas like policing. This study can give more clarity on the importance that can follow from considering the thoughts and concerns of residents, especially when it comes to future research and implementation of AI in the Los Angeles region.

Predictors of Academic Success in First Year Health and Human Sciences Majors
Gabriella Trujillo, Natalie Hogenboom, Daniel Orr, Molly McCoy, Lawrence Stokes, Giselle Haddad

First-year college students face a myriad of neurocognitive and psychological challenges that may critically shape their academic trajectories. PURPOSE: This study examined multiple factors that have been implicated in academic performance, such as anxiety, study skills, daily habits, and substance use, to determine a correlation between student lifestyle and its impact on overall academic performance. METHODS: 96 first-year college students (female: 63%; male: 35%; mean age 18.5 years) were given a survey at two time points during the fall 2024 semester. Academic and social predictors of overall academic success including items such as time management skills and alcohol use were measured. RESULTS: Students taking biology lecture and lab presented a significant correlation between a better grade and making good use of their study time ($R=0.4219$, $P<0.05$; $R=0.3179$, $P<0.05$). There was also a significant correlation between better grades in medical terminology and finding the time to review the content before the exam ($R=0.4119$, $P<0.05$). CONCLUSION: Effective time management and study habits are positively correlated with higher academic performance among first-year college students. Specifically, students who allocated their study time efficiently and reviewed course material before exams demonstrated better grades in biology and medical terminology. These findings highlight the importance of structured study routines in supporting academic success.

The preservation of space and place
Destiny Xochilt Bushman Reyes

I will be looking at the presence and importance of safe spaces for Queer Latinos in Los Angeles during the 1990s. There were a lot of unique challenges the Latino community faced at this time, things like political discrimination, the growing increase in highlighting Queer identities in society as well as many other aspects of identity that intersect with. This research will look at the preservation of space and place

primarily through archival research from Queer Latinos during that time frame to critique safe spaces and their implications for helping shape Queer Latino identities and representation.

Quantifying Animal Biodiversity within a one-year-old Micro-forest in east Los Angeles
Stephanie Flores

Urban development often leads to habitat fragmentation and disturbance of native ecosystems, resulting animal biodiversity declining. This study aims to resolve biodiversity loss from urban development by demonstrating that native plant micro-forests can enhance local animal biodiversity and carbon sequestration. A micro-forest is a densely planted, small-scale forest where high-density planting creates competition among plants, encouraging faster growth and leading to a self-sustaining, resilient habitat. The micro-forest located in Ascot Hills Park, a 93-acre urban park in east Los Angeles, spans 10,000 square feet and was planted in winter 2023-2024 with over 800 seedlings from 30 native California species, including black walnut (Juglans californica), coastal live oak (Quercus agrifolia), and elderberry (Sambucus nigra). Currently the micro-forest has maintained a 77% seedling survivorship, indicating strong early establishment. Biweekly surveys and quarterly insect pit traps were conducted to measure animal biodiversity in both the micro-forest and control plots. The surveys involved a 60-minute roving method, identifying observed animals to the lowest taxonomic level and categorizing them by frequency. Preliminary results indicate the micro-forest hosts an average of 18.5 animal types per month, compared to 11.5 in the control plot. Additionally, 149 different animal types have been observed in the micro-forest, versus 100 in the control plot. These findings suggest that native plant micro-forests could effectively mitigate biodiversity loss and habitat fragmentation in urban areas. Future surveys will track long-term ecological impacts, further evaluating how micro-forests support urban biodiversity.

Quantifying the impact of stem-loop thermodynamic stability on the frameshift efficiency
Neftali Rocha-Martin, Nigel Outley

Imagine reading a book and in the middle of it, the words shift to the left by one letter resulting in a completely new story. An event termed, programmed -1 ribosomal frameshift (-1 PRF) results in a similar experience for a ribosome. -1 PRF events induce ribosomal stalling and slippage, allowing the ribosome to translate an alternate reading frame. While frameshift errors are generally rare, retroviruses utilize programmed frameshift events, allowing them to produce supplementary proteins that aid in viral replication. The Human T-Cell Leukemia virus 1 (HTLV-1) takes advantage of this mechanism between the gag-pro reading frames in order to translate those proteins in the -1 reading frame along with the proteins previously translated in frame. This results in the Gag protein being translated in frame while the Pro protein is translated in a -1 reading frame. The HTLV-1 frameshift site features a heptanucleotide slippery sequence and spacer followed by a stem-loop structure. While these elements induce a -1 PRF event, the specific characteristics of the stem-loop that influence the frameshift efficiency have not been investigated. Previous research on HTLV-2, which frameshift site has 86% sequence identity to HTLV-1's, has shown the total thermodynamic stability of the stem-loop structure to impact the frameshift efficiency, but no further investigation was conducted. To test and quantify the impact of the HTLV-1 gag-pro frameshift site stem-loop's total thermodynamic stability on its frameshift efficiency we will use two stem-loop mutants (SLM 9 & 12). We will measure the frameshift efficiency for the HTLV-1 gag-pro frameshift site that include either the wild-type stem-loop or a mutant structure using a dual-luciferase assay. Compared to the wild-type stem-loop, the mutants have a less stable structure, thus we predict they will produce a lower frameshift efficiency. Quantifying the frameshift efficiency will create a more

clear picture of the stem-loop's involvement in inducing -1 PRF events, providing more routes of future research and potential treatments to investigate and utilize.

Quasi-Normal Modes of Extended Uncertainty Principle Kerr Black Holes
Ava Hoeger

The current understanding of gravity is shaped largely by Albert Einstein's theory of General Relativity. This theory is largely successful at predicting phenomenon on macroscopic scales, but it faces unphysical singularities at quantum scales. This project will explore the possibility of combining General Relativity with quantum mechanics through the Extended Uncertainty Principle (EUP), which provides a new, fundamental length scale correction L* to the Heisenberg Uncertainty Principle. This allows for quantum gravity effects at macroscopic scales, which will be examined through Kerr black holes with event horizons on the order of L*. These black holes are rotating and electrically neutral, and they are the most common type of black holes in our universe. To test the EUP on Kerr black holes, this project will examine the quasi-normal modes produced by gravitational wave perturbations predicted by the EUP. The method used will include Mathematica code to model the predictions from the EUP modified Kerr metric. This project aims to prove coherence between the EUP corrected quasi-normal modes for Kerr black holes with gravitational wave data collected by LIGO.

Racial Threat, Diversity in Government, and Democracy
Mariana Barrios

Research has shown that when White Americans, particularly Republicans, perceive growing diversity in the U.S. population, they are more likely to hold discriminatory views against racial minorities and harbor antidemocratic sentiments. However, the literature has not considered the political implications about increasing diversity among U.S. government officials. I theorize that there is added political salience of growing racial diversity among politicians as representatives in actual political institutions, due to the power that the government is perceived to have over citizens' lives. The research tests this claim using an original online survey experiment of 1,000 White Americans, which randomly assigns respondents in two treatment groups and one control group. I expect to find that White Americans who are made aware of the government's growing diversity will be more likely to discriminate against racial minorities and support antidemocratic ideas compared to a control and another treatment group primed about the population's growing racial diversity. I expect this to be particularly salient amongst Republicans. This effect, if found, will signify an important point of discussion within the White American constituency, which may have implications for the future of American political behavior in various diversifying contexts.

RAG and Endangered Language Translation
Diego Cuadros

Modern neural machine translation methods have revolutionized language processing by achieving remarkable accuracy and producing high-quality translations across a wide range of languages. It has been demonstrated that with access to large volumes of training data, neural methods are capable of capturing subtle nuances of grammar, syntax, and meaning that were previously difficult to address. However, these method's reliance on large datasets, limits their applicability for low-resource languages such as Owens Valley Paiute (ISO 639-3: mnr, an Indigenous language spoken in Eastern California). The Kubishi Research Group aims to address this gap by leveraging recent advancements in general-purpose large language models to develop translation systems that perform effectively with minimal data. This

approach seeks to revitalize critically endangered languages that lack extensive documentation. Large Language Model-Assisted Rule-Based Machine Translation (LLM-RBMT) combines artificial intelligence and human-inspired learning to translate languages that it has almost no pre-existing knowledge of. The system mimics how humans do translation when learning a new language, using tools such as a dictionary, sentence structure rules, similar sentences, grammar documentation, and more. Using techniques like retrieval augmented generation (RAG) and prompt engineering, we can develop new methods for translating low-resource languages with high accuracy. The project has the potential to revolutionize endangered language preservation, providing invaluable tools for linguists, educators, and learners.

Recency of COVID-19 is Associated with Higher Perceived Workload on Neuropsychological Assessments

Kelsey Armstrong

In the present study, we assessed executive function via the Trail Making Test (TMT), motor functioning via the Grooved Pegboard (GP) Test, and workload via the NASA-Task Load Index (NASA-TLX) in relation to recency of COVID-19 infection. Part A of TMT prompts participants to draw lines connecting numbers in order, and Part B requires the participant to alternate between numbers and letters in numerical and alphabetical order. Scores are completion time (seconds) and number of errors. The GP test assesses how quickly (seconds) participants can place pegs into randomly positioned slots with their dominant and nondominant hands. The NASA-TLX is a self-report measure with 6 subscales. A higher score indicates higher perceived workload. We examined college students with a prior COVID-19 infection ($n = 59$). Time between infection and testing ranged from two to 49 months. GP scores, TMT performance, and TMT A workload were not associated with COVID recency. Statistically significant correlations were found between COVID recency and TMT B workload: overall ($p = .009$), physical demand ($p = .024$), effort ($p = .026$), and frustration ($p = .048$). Mental demand was close. Statistically significant correlations were found with the nondominant hand: overall ($p = .010$), physical demand ($p = .001$), and frustration ($p = .044$). These correlations are interesting because individuals who had COVID may find tasks involving executive function and visual-motor coordination more difficult than those who have not had COVID.

Receptivity to Health Campaigns: The Role of Experience

Michelle Maxwell, Samantha Ikenna-Obioha, Hannah Tate, Adeline Ventrone-Ortega, Katelin Olson, Ava Nariman

This study aims to answer the question, how do our experiences with health shape our reception of health campaigns? Six female college students were interviewed about their health status and history. They were then shown images of health campaigns to give a reaction to the campaigns. The goal of this was to find a connection between someone's health history and how they interpreted the images. This study explores how personal health histories influence individuals' perceptions of health-related campaigns. Through analysis of reactions to campaigns that address COVID, nutrition, and mental health, three major themes emerged. The first of which is that individuals with a history of health struggles are more receptive to campaigns, often feeling targeted. Second, participants who have had few health challenges in their lives show detachment from the campaigns and are less emotionally affected. The third theme is that there was a heightened impact on all participants when shown a fear-based health campaign. These findings highlight the importance of taking into consideration personal health experiences when designing public health campaigns. This research builds upon existing research

in the field of public health messaging, connecting self-assessments of health with perceptions of health campaigns. It also critically examines the effectiveness of different strategies of campaigning. Further directions for this research and areas for examination are discussed, such as expanding the participant pool to be more diverse, and taking findings related to distinct groups into consideration.

Robotic Rhythm: A Contemporary Look At AI-Driven Editing Tools' Efficacy in Understanding and Replicating Human Rhythmic Editing Techniques.
Alexander Selby-Lara

It is undeniable that artificial intelligence has made its way into the film world. From AI-generated imagery and sound design in two 2025 Oscar nominees — The Brutalist and Emilia Pérez — to monthly updates and releases of existing and new generative image and video models, AI-driven filmmaking tools are here to stay. But what does this mean for the post-production workflow? Much like camera development, editing systems, and software have come a long way from flatbed film editors to Adobe Premiere Pro v. 25.0. Yet despite each technological leap from system to system, the delicate task of rhythmic editing has always remained in the hands of humans. Never before have filmmakers been so close to having software capable of properly pacing out a scene, cutting between actors, and making story beats emotional. This study set out to discover if currently available AI-driven editing tools can understand and replace basic human rhythmic editing techniques through an overview of contemporary research and testing on the latest AI models. Given the exceptional rate of improvement in artificial intelligence technology over the past few years, it may only be a few months until artificial intelligence software is capable of rhythm editing. But for now, all available research and testing suggests that humans have not yet reached the nexus of being able to edit a film with text prompts, but we are not that far off.

The Role of Institutional Expenditures and Prevalence of HIV in Sub-Saharan Africa
Clare Donahue

This research paper examines the relationship between the role of institutional expenditures and the prevalence of HIV in Sub-Saharan Africa. Using data from the World Bank and the GINI Index, this research will investigate whether higher investments in healthcare, education, and public health initiatives correlate with lower HIV prevalence rates. This study employs econometric modeling to analyze the relationships between institutional spending, socioeconomic factors, and health outcomes. Country fixed effects regression models are run, with controls for the GINI index and % of GDP for government health expenditures. By highlighting the role of expenditures and equity, the research will contribute to the ongoing dialogue on mitigating the HIV epidemic and advancing public health in resource-constrained settings.

The Role of Loneliness on College Students' Self Perception and Well-Being
Angelina Matar

Transitioning from high school to college can often be stressful in many young adults' lives and a critical period of identity development and social adjustment. Yet, many students struggle with social isolation and disconnection (Wiseman et al., 2006). Specifically, loneliness has been identified as a significant predictor for poor mental health outcomes, with those with negative self-perceptions, often lacking self-esteem, being at greater risk (So & Fiori, 2022; Bruffaerts et al., 2018). This study seeks to gain a deeper understanding of how college student's experience with loneliness, through the lens of agency and self-

perception, affects their well-being. Specifically, at the intersectionality of mental health, ethnicity, and disability, the study hopes to see how external and internal factors influence students' ability to cope and combat loneliness. A university-wide survey collected demographic information concerning mental health, ethnicity, and disability diagnoses, while also measuring participants' self-perception and agency. Additionally, qualitative interviews were used to further understand the role of how external factors influence students' ability to find a community and their ability to cope with loneliness. Through the use of qualitative and quantitative results, mental health, ethnicity, and disability can affect students' ability to establish a community, therefore poorly influencing their self-perception and agency causing them to experience loneliness. Thus, it is crucial to provide university resources to those who struggle with mental health, students with disabilities, and minority ethnicities, allowing them to find safe spaces to establish a community while honing the coping skills to persist through loneliness.

The Role of Racial and Ethnic Belonging, Medical Mistrust, and Healthcare Discrimination in Having Discussions about Colorectal Cancer Screening among Black Adults aged 45-75: Results from the 2022 Health Information National Trends Survey

Metasebiya Tefera

Background: Black adults have a higher colorectal cancer (CRC diagnosis rate than White adults, and CRC screening (e.g., colonoscopy) reduces incidence and mortality. Research is needed to explore culturally-relevant psychosocial factors like medical mistrust and discrimination in healthcare settings that influence discussions about CRC screening among Black adults. Additionally, racial and ethnic identity belonging is an important predictor of responses to racial discrimination that merits study in the context of medical mistrust discrimination in healthcare. Purpose: Using the 2022 Health Information National Trends Survey (HINTS), we examined if higher ethnic belonging is associated with lower medical mistrust and fewer discrimination experiences among African Americans aged 45-75 (N=434). We also investigated how these factors influence discussions with clinicians about CRC screening. Method: First, we conducted multivariate linear and logistic regressions to test ethnic belonging as in predicting medical mistrust and experiences of discrimination as outcomes in separate models. Then, we conducted a multivariate logistic regression with medical mistrust and discrimination predicting discussions about CRC screening. Results: There was no significant association between ethnic belonging and either medical mistrust (p=.106) or discrimination (p=.066). However, higher ethnic belonging significantly predicted higher odds of discussing CRC screening (OR=1.40, p=.016), and medical mistrust predicted lower odds of these discussions (OR=0.62, p=.023). Conclusions: Higher ethnic belonging may encourage more frequent discussions about CRC screening, although mechanisms that explain this relationship merit study. Higher medical mistrust predicted lower odds of having discussions about CRC screening, underscoring the clinical and public health importance of fostering truth.

The Role of Self-Compassion in Moderating the Relationship between Self-Conscious Emotions and Depression

Evan Wu, Emily Weirick, Kathryn Duff, Gigi Truong, Timothy J. Williamson & Maire B. Ford

Self-conscious emotions, such as shame, guilt, and externalization of blame are linked to reductions in psychological wellbeing. In the current study we investigated the association between shame, guilt, and externalization of blame on depression. We also investigated the possible role that self-compassion (directing kindness toward oneself in moments of suffering and distress) may play in moderating the relationship between self-conscious emotions and depression, potentially buffering against the impact of

self-conscious emotions on depression. We conducted a questionnaire-based study examining the association between self-conscious emotions and depression, with self-compassion as a potential moderator of this association. Our study is ongoing but thus far we have collected data from 81 participants (Mean age=19.54; 61.7% female). We conducted multiple linear regression analyses to investigate the relationship between each of the self-conscious emotions that we measured (shame, guilt and externalization of blame) and depression. We also tested the moderating role of self-compassion. Findings revealed that shame and externalization of blame are associated with higher levels of depression, while guilt is not associated with depression. Self-compassion does not serve as a moderator. These findings allow for a better understanding of some of the underlying emotions that contribute to depression. Shame and externalization of blame may be important targets in depression treatments. Future research should explore other moderators (e.g., emotion regulation strategies, social support) or specific components of self-compassion (e.g., higher mindfulness, lower over-identification) that may mitigate the relationship between self-conscious emotions and depression.

The Role of Self-Compassion Moderating the Relationship between Rumination and Anxiety
Isabella Castro, Raul Rivera, Amanda Williams, Areika Novella, Maire B. Ford, & Timothy J. Williamson

College students report high levels of anxiety, which is strongly predicted by rumination—repetitive thinking about negative feelings and events. Self-compassion—directing kindness toward oneself amid moments of suffering and distress—has been shown to mitigate stress and enhance resilience in college students, but less is understood about whether coping through self-compassion can mitigate the relationship between high rumination and anxiety. Purpose: In this cross-sectional survey study, we tested whether self-compassion moderates the relationship between rumination and anxiety. Method: N=81 undergraduate students (Mean age=19.54; 61.7% female) completed validated self-reported questionnaires on rumination, anxiety, and self-compassion. We computed zero-order correlations between variables and conducted a multivariable linear regression with rumination, self-compassion, and the interaction between rumination and self-compassion as predictors and anxiety as the outcome. Results: Zero-order correlations indicate that anxiety is significantly correlated with higher rumination ($r=.43$, $p<.001$) and lower self-compassion ($r=-.38$, $p<.001$). There was no significant interaction between self-compassion and rumination in predicting anxiety ($b=-0.65$, $SE=1.30$, $p=.617$). Higher rumination significantly and uniquely predicted higher anxiety ($b=2.37$, $SE=0.92$, $p=.012$), but self-compassion was not associated uniquely with anxiety ($b=-1.90$, $SE=1.11$, $p=.096$). Conclusion: The findings suggest that higher rumination (but not self-compassion) independently predicts higher anxiety, and self-compassion does not attenuate this relationship. Future research should explore whether alternative coping strategies (e.g., relaxation) or specific components of self-compassion (e.g., higher mindfulness, lower over-identification) may mitigate the relationship between rumination and anxiety.

Saltwater Convection Experiments with Applications to Subsurface Oceans on Icy Moons
Edward Jones

Enceladus is one of Saturn's moons which is characterized by an icy and tectonized surface. The Cassini spacecraft flew by Enceladus in 2005 and observed cracks in Enceladus's south pole, which are actively venting nanometer-sized silica grains into Saturn's E-ring. It is suggested that these particles were formed in the high temperatures of hydrothermal vents at the bottom of a subsurface ocean of Enceladus, and it has been confirmed that the entirety of Enceladus contains a global subsurface ocean which separates a rocky core and the outer layer of ice. These hypothesized hydrothermal vents at the bottom of the subsurface ocean may spew the same primordial soup that was thought to form life on

Earth, given enough sunlight. We experimentally simulate the convective fluid motion at Enceladus's south pole, with varying salinities and heat gradients and measure the non-dimensional fluid dynamical constants that output from each experiment. If these constants fall within the range predicted by Schoenfeld et al. Nature Earth & Environment 2023, then the probability that material from the hydrothermal vents is being brought to the surface cracks rises, which increases the odds of finding life on Enceladus.

Say No to Drugs: An Analysis of the Militarization of Anti-Drug Trafficking Policies in Mexico and El Salvador

Brigette Andrade

In the past 25 years, Latin American countries have used both hard-line and soft-line strategies to decrease drug trafficking. Hard-line (militarized or "iron-fist") approaches include mass incarcerations, extrajudicial killings, use of military-grade weaponry for crop eradication, and military patrolling throughout the state. Soft-line (non-militarized) approaches include community education and prevention, decriminalization and legalization of drugs, the language of peaceful coexistence, and civilian police reform. My research asks: Which strategy, a militarized or soft-line approach, has been more effective at reducing drug trafficking, decreasing rates of homicide and crime, and improving public attitudes on democracy and the state? To answer this question, I am examining case studies from two countries, Mexico and El Salvador, between 2000 and 2025. Each country experimented with both hard and soft-line strategies, which allows for a comparison of the efficacy of each approach. My research seeks to shed light on which type of approach is best able to decrease drug trafficking and minimize its harmful societal effects.

Self Doubt and Self Destructive Immune Systems: Experiences of Women with Autoimmune Disease.

Adeline Ventrone-Ortega, Ava Nariman, Hannah Tate, Katelin Olson, Michelle Maxwell, Yoyo Ikenna-Obioha

Autoimmune disease is an unfortunate reality for more than 23.5 million Americans. Autoimmune disease not only affects the physical experiences and capabilities of those affected, but provides mental and systemic implications. Many individuals dealing with autoimmune disease deal with invalidation from themselves and others, and have specific experiences that emerge from their reality of living with autoimmune disease. While research on the experiences of women with autoimmune disease is growing in quantity, there is still a deficiency of literature on not only experiences of autoimmune disease, but autoimmune disease as a whole. This is largely due to the fact that autoimmune disease disproportionately affects women. This study used qualitative methods to understand the experiences of women with autoimmune disease. In order to better understand these women's experiences, a convenience sampling method was used to find six female participants between their early thirties and early sixties. Three major themes were found through the use of one-on-one semi structured interviews of six female participants gathered through a convenience sample. These themes were: (1) navigating the medical system proved difficult for many participants due to physicians' and self doubt of illness and severity of symptoms (2) the grieving process of a once predictable body provided major mental health implications(3) participants were able to find silver linings through their experiences.

Shawty's Fire: A Content Analysis and Theory on The Hypersexualiztion of Black Women Within Contemporary Film

Lauryn Tolliver

During the Summer Undergraduate Research Program, I analyzed and theorized that Black women are overly sexualized within modern film by non-black women filmmakers and that impacts the perceived sexuality of Black women within the larger social narratives. With my research, I answered three questions: "Are Black women oversexualized by non-black women filmmakers"; "Does the race or gender of the non-black women filmmakers affect how they portray Black women"; and "What are the methods that filmmakers use to dehumanize and oversexualize Black women". During my project, I discovered that the race nor gender of the filmmaker is not a mitigating factor in whether or not Black women are hypersexualized. Black women are the only group that did not overtly oversexualize Black women within their films. The intersectional identity of being Black and a woman is necessary for the accurate, and culturally sensitive portrayal of Black womanhood. During my project, I developed a theory called the F.U.S.E theory. This theory explains that non-Black women filmmakers are oversexualizing Black female characters by making the characters flat, unintelligent, sexual, and exaggerated ie. a FUSE . The Black female characters do not develop or serve a purpose but over-the-top sexual commodity and comedy. I created this theory by watching 4 movies with varying directors. I watched the movies: Norbit, Precious, Clueless, and Little (one is directed by a Black man, One is a White man, one is a White woman, and the last one is by a Black woman). I then completed a series of content analyses and theory development to conclude and deduce my research. In each of the films not directed by a Black woman, the Black female characters are intense stereotypes with no depth, purposefully obtuse, vulgar, and inflated. By developing the F.U.S.E theory we as screenwriters and filmmakers can recognize and actively avoid these methodologies and tropes used to oppress and disrespect Black women and portray inaccurate information.

Shocks and Risk Tolerance: Understanding The Behavior of Kenyan Small Businesses After a Setback

Patrick Panko

The goal of the survey was to better understand the factors that perpetuate risk aversion and how it impacts business practices among small businesses in Nairobi, Kenya. To identify participants with higher levels of risk aversion, they were asked three questions related to their risk preferences, one asking what their self-reported risk preference was, another asking if they'd be willing to take a risk with low uncertainty in its payout, and another asking if they'd be willing to take a risk with high uncertainty in its payout. Participants' responses were measured across several key factors, including business practices, number of employees, gender, and wealth. These responses were analyzed to identify patterns that define risk-averse individuals. Additionally, the survey sought to examine the relationship between risk aversion and business practices that could be seen as overly cautious, such as being unable to stock your store or make change during a transaction due to fear of debt. Interestingly, risk tolerant participants were more likely to report having suffered a weather shock or an illness than those who were risk-averse, a result contrary to the expectation that shocks increase risk aversion.

Sibling Relationships Through the Lens of Culture and Inclusion of Other in the Self
Laura Aguilar

Sibling relationships are formative for identity development and well-being. These relationships vary in closeness due to factors such as age, gender, family dynamics, parenting style and cultural context. Existing literature has shown that siblings from interdependent cultures have closer relationships than those from independent cultures. This thesis proposes that sibling relationships can be examined through the lens of the self-expansion model, focusing on the Inclusion of Other in the Self (IOS) scale. It hypothesizes that those from interdependent cultures will have more inclusion of other in the self than those from independent cultures. Participants from Japan representing the interdependent culture and from the United States representing the independent culture would complete the IOS scale to assess levels of inclusion of other in the self. By using this scale on siblings from the United States and Japan, we would begin to bridge the gap in the literature around inclusion of the other in the self and sibling relationships.

Social Media's Role in Shaping Self-Perception: The Conceptualization of Inspiration vs Curated Content
Dayja Hernandez-Brown, Camilla Davis, Chloe Lee

This study examines the impact of social media on self-image, with a primary focus on how exposure to idealized and often fabricated content influences self-esteem and self-perception. Digital platforms play a significant role shaping self-worth in response to social media's portrayal of beauty, fitness, and luxury. A series of participant interviews explores social media usage patterns, the emotional effects of aspirational content, and whether social media promotes realistic lifestyles or unattainable ideals. Additionally, it examines the differences between online interactions and real-life experiences in shaping self-perception. Findings suggest that social media fosters self-comparison and decreased self-esteem when content portrays body standards, lifestyles, or perceptions of wealth that do not align with reality. While some individuals find inspiration in certain posts, many recognize the curated nature of online content, highlighting the contrast between digital personas and authentic human interactions. Participants expressed a growing awareness of the psychological effects of social media, noting that excessive exposure to idealized images can contribute to feelings of inadequacy, whether related to beauty, wealth, or productivity. This research explores the challenges of digital self-image and emphasizes
the importance of using social media mindfully to cultivate a healthier sense of self. Ultimately, it emphasizes that social media presents an incomplete picture of reality and encourages individuals to engage critically and thoughtfully with online content to maintain a balanced and positive self-perception.

Sommelier training of an artificial nose
Larissa Negom, Lauren Crumb

Rapid and accurate detection and identification of gaseous compounds holds practical applications ranging from Homeland Security to medical diagnoses and quality control. Such ability is also valuable within the food and beverage industry for analyzing complex solutions and focusing on only the most notable features. In particular, wine is a notoriously complex solution but is graded by sommeliers to highlight key prominent notes in aroma and flavor. Wine aromas typically are organized into four major families: fruity, floral, oak, and vegetal. We train an electronic nose (Cyranose 320) to serve as an

instrumental sommelier for identification of aromas in wine samples. This is accomplished through a combination of instrumentation hardware and software. Exposing the array of sensors in the electronic nose to a volatile aroma induces an electronic response to this compound. Repeated exposure to the same aroma results in similar electronic responses of the sensors to create a characteristic response for a given aroma. Using machine learning algorithms, these characteristic responses for a set of aromas can then create a training set for each of the aroma families. The "trained" nose is then employed to identify aromas in increasingly challenging samples. We discuss our protocol for creating training sets with Principal Component Analysis (PCA) plots that avoid overlap of distinct aromas within the aroma family set. These training sets are then used to identify unknown samples of individual aromas similar to the samples used for creating the training set. More challengingly, we test our trained nose on more complex samples comprised of combined aromas, aromas in model wine solutions, and actual wine samples. Our trained nose shows promise in identification of key components in complex sample media while certain combinations present an ongoing challenge.

Spatiotemporal expression of Serotonin (5-HT) receptor 5-HT2B and Cannabinoid CB1R receptor from gastrulation to neurulation

Sophia Shoham

Prior to the development of the functioning nervous system, neurotransmitter systems, such as the serotonergic and endocannabinoid systems, regulate cell proliferation, migration, and differentiation. The neurotransmitter serotonin acts through serotonin receptors, and cannabinoids interact with the CB1R receptor. Receptors CB1R and serotonin receptor 2B interact by mediating downstream effectors, and are co-expressed in the brain, eyes, ears, and musculoskeletal system in the adult. However, little is known about the role of both receptors in forming these adult derivatives. Determining the expression patterns of CB1R and serotonin receptor 2B at early embryonic stages, from gastrulation to neurulation, may inform on the morphogenic role of both systems. We hypothesize that CB1R and serotonin receptor 2B are co-expressed in the embryonic progenitors of adult derivatives that express both receptors. To test this hypothesis, double immunohistochemical staining was completed using serotonin 2B and CB1R-specific antibodies. Staining was conducted using chick embryos, ranging from stage 4 (day 1 post-incubation) to stage 13 (3 days post-incubation). Our preliminary results show co-expression of serotonin 2B and CB1R receptors in the neural tube, somites, and optic and otic vesicles. Interestingly, there is elevated expression of CB1R in contrast to serotonin 2B in the forebrain. By identifying the spatiotemporal expression of receptors CB1R and serotonin 2B, we may better understand the dynamic relationship between both the endocannabinoid and serotonergic systems during embryogenesis.

Statistical Analysis for the California Reducing Disparities Project

Jaida Andrews

Throughout the past 5 months of extensive research, my faculty research advisor Dr. Fitzpatrick and I have been working alongside the LMU Psychology Applied Research Center on the California Health Disparities Project (CRDP). This project is a large-scale demonstration project designed to address mental health disparities that exist in minoritized populations, particularly African American, Asian and Pacific Islanders, Latina/o, Native Americans, and LGBTQ people. The 6-year effort funded by the CA Department of Public Health (CDPH) involved state personnel, 35 mental health service providers, several other contractors, and the PARC team, which conducted the overall evaluation of CRDP. Outcomes include psychological functioning using the Sheehan Disability Scale, distress using the Kessler 6 measure, along with marginalization and 2 cultural connectedness measures that were

developed by PARC. These were collected pre- and post- intervention. With this data, we used graphical summaries, t-tests, and multiple regression charts to make inferences regarding the impact of CDRP programs on these underserved priority populations. Our preliminary analysis indicates that the implementation of CDRP programs has been able to effectively improve the mental health of underrepresented minority groups in California.

Stochastic and Online Task Graph Scheduling
Jason Chamorro

Task Scheduling is one of the most important NP-Hard problems in computer science, with applications in optimizing resource allocation, managing workflows in distributed systems, improving efficiency in manufacturing processes, and more. Task Scheduling algorithms fall under two categories: compile-time algorithms, called "offline," and real-time algorithms, called "online." Offline algorithms operate under the assumption that important information such as task and communication costs are known ahead of time, allowing for complete start-to-finish schedules. In contrast, algorithms function in a dynamic environment where variables may change. While many offline algorithms have been proposed in the literature, there is far less work in online algorithms. The goal of this project is to modify well-known scheduling algorithms designed for the offline model to work under the online model. By scheduling based on estimated runtime and rescheduling as tasks finish, we can constantly improve our schedule as it processes, accounting for tasks that take much longer or shorter than initially expected. Building upon previous work in algorithm comparison done by the Kubishi Research Group, we will be able to discover new relationships between offline and online versions of algorithms by comparing our algorithms to their offline counterparts. This opens the possibilities for more general algorithms that can work in a wider range of settings. Ultimately, should our research show promising results, we aim to create general strategies for converting offline algorithms to online variations.

Straightness as a Claim to Socio-Economic Power
Hayden Johnson

This paper seeks to explore not just the socio-political function of straightness as a strategy for acquiring and preserving economic and social capital within contemporary capitalist societies. Through an analysis grounded in queer theory, black queer theory, and critical capitalist theory, the research paper examines how heteronormative ideals and homophobic practices serve to uphold and reinforce systems of power. Past research has already described heterosexuality as a system of social power; however, a contemporary analysis of the economic nature of sexual orientation remains untouched. The paper argues that sexual orientation actsas an active choice, which grants access to various forms of capital. I also seek to redefine homophobia as an inherently colonial instrument of control, that polices sexual norms to consolidate power among dominant groups. Through an examination of contemporary right wing media, and an analysis backed by a close reading of queer political thought, I will outline the modern performance of straightness as an economic power claim. These findings aim to contribute to a deeper understanding of how heteronormativity intersects with capitalist interests, reinforcing social hierarchies and marginalizing non-normative identities.

Stress in the College Journey: A Qualitative Exploration of Stress Among College Students
Katelin Olson

Stress among college students has become a significant and growing concern that impacts both academic performance and overall well-being. Understanding how students experience and manage stress is crucial for raising awareness on the harmful effects stress can have. This study explores how college students experience stress through qualitative interviews, incorporating photo elicitation as a tool for deeper insight. The analysis identified three major themes: the pile-on effect, gender differences, and the sacrifice of personal well-being. The pile-on effect demonstrates how multiple stressors accumulate and compound over time, leading to heightened stress and a sense of overwhelm. The data reveal how these stressors overlap, making it difficult for students to cope with each issue individually and intensifying their overall emotional burden. Additionally, the research highlights significant gender differences in how stress is experienced and managed. Female students in this study often relied on emotional expression and social support, seeking solace by communicating with close friends or family members. In contrast, the male participants were more likely to internalize their stress, preferring to isolate themselves and take on their challenges independently. Female participants in the study also reported higher levels of chronic stress in comparison to their male counterparts. Finally, the study examines how the demands of college life lead students to sacrifice their physical and emotional well-being. Many participants expressed neglecting self-care activities such as exercise and sleep due to the pressure to meet academic expectations. These findings highlight the complex nature of stress in the college environment, including the interplay between various sources of stress and the coping mechanisms that students adopt.

Subjective Vertical and Distance Estimation with Fear of Falling
Alexa Sokolove

Acrophobia is characterized by anxiety and avoidance of heights, often leading to perceptual differences such as increased postural sway, greater visual field dependence, and overestimations of distances, even in subclinical populations. However, the perceptual mechanisms behind acrophobia are still debated; some research argues the anxiety of being at heights leads to these perceptual differences while other research suggests that visual differences may lead to higher subjective levels of distress when exposed to heights. Few studies have examined the effects of repeated exposure to heights; thus, the present study aims to habituate participants to a given height using VR exposure, therefore lowering their anxiety/fear of the height, and examine any changes in visual field dependence, distance estimation, and postural sway. The study takes place over two days; on day one, participants complete questionnaires regarding height anxiety, tasks that measure reliance on visual information, balance tasks, and estimate real-world vertical and horizantal distances. Participants will then engage in a VR exposure to three buildings (12, 26, and 40 meters tall), walking along a plank and looking down until their distress decreases. On day two, participants will return to the virtual environment, then complete the same tasks. We expect height anxiety/fear, indicated by scores on the anxiety-related scales, to decrease after repeated exposure. However, despite these decreases in anxiety, we expect visual field dependence, postural sway, and distance estimates to remain the same.

The Synthesis and Model Systems of Psychrophilin F
Madrid Ghanavat

Cyclic peptides have received increased interest in recent years because of their oftentimes selective and potent binding to targets of medicinal interest, such as protein kinases, with low toxicity levels. Psychrophilin F is a cyclic peptide naturally occurring in Aspergillus versicolor ZLN-60, a rare marine fungal species. There is currently no reported synthetic route for this molecule, which may have anti-cancer properties. To address this limitation, we have developed an exceedingly short synthesis of the linear tripeptide precursor to pyschrophilin F via chemoselective acylations of proline, anthranilic acid, and N-acetyl-N-methyltryptophan. Fluorinated indole model systems were created to evaluate conditions for the attachment of the tryptophan subunit to a proline-anthranilic acid dipeptide derivative. In these model systems, no side products were observed and the tripeptide product was pure; however, when N-acetyltryptophan was used, several unwanted side products were identified. Derivatives of tryptophan were used to test the hypothesis that the acetamide group was the cause of side product formation, eventually leading to the observation that N-acetyl-N-methyltryptophan benzyl ester could be cleanly coupled to the Pro-Anth dipeptide. Efforts to convert the obtained linear tripeptide to psychrophilin F via macrolactamization are underway. This presentation will describe the synthesis of a proline-anthranilic acid dipeptide, the results of model studies focused on coupling this dipeptide to tryptophan derivatives, and our efforts toward the final cyclization of psychrophilin F.

The Temperature and Salinity Conditions of Southern California Marine Habitats
Cassandra Erickson

Mussels are a valuable aspect of coastal communities because of their role as ecosystem engineers, stabilizing shorelines, controlling erosion, and increasing biodiversity by creating habitats for other organisms. Anthropogenic climate change is causing a global increase in sea surface temperatures and a shift in ocean salinity levels, which is most significantly impacting coastal communities. Mytilus galloprovincialis is an invasive mussel species present along Southern California's coast that can withstand high temperatures but is sensitive to low salinity levels. To observe the potential impact of climate change on M. galloprovincialis, salinity (ppt) and temperature (°C) were measured in Marina Del Rey (MDR) and Ballona Creek (BC), CA over the course of 2 years. A salinity range of 0 to 39 ppt was measured at BC and 11 to 36 ppt at MDR, with greater variation in salinity conditions at BC. Thermal data across three different tidal heights indicates a total temperature range of 5.6 to 35.8°C at BC and a one-year average temperature of 18.3°C. For the different tidal heights, the lowest (LT), middle (MT), and highest (HT) had almost identical averages but HT had the greatest variation with more instances of thermal extremes and monthly averages as low as 14.5°C and as high as 21.9°C. Data on the environmental conditions these mussels are currently being exposed to will help inform understanding of their resiliency and adaptation to anthropogenic climate change as well as the impact climate change may be having on coastal ecosystems.

Ties Asian American and African American Economies
Connor Hilbert, Chase Haydel

The economic interactions, power, and interdependence between the Asian American and African American communities in the United States have shaped the broader landscape of minority economic agency, entrepreneurship, and financial influence. This poster explores historical and contemporary economic ties, including Black-Asian business alliances, consumer power, and labor market dynamics. It

examines critical moments of economic cooperation and tension, such as the role of Asian-owned businesses in predominantly Black neighborhoods and African American patronage of Asian enterprises. Additionally, the research highlights shared struggles against economic discrimination, redlining, and wealth disparities, emphasizing opportunities for cross-community coalition-building. Using data on business ownership, employment trends, and inter-group trade networks, this project argues that strengthening economic solidarity between these communities can enhance financial resilience and collective bargaining power. By fostering mutual economic empowerment, Asian American and African American communities can contribute to a more equitable and cooperative economic future in the United States.

Tilt Biases and Subjective Vertical
Charles Jenkins

The goal of this study is to measure how biasing visual and vestibular (balance) cues influences the perception of subjective vertical (i.e., internal sense of the direction of gravity). Using the rod and frame test and galvanic vestibular stimulation (GVS) to place visual and vestibular cues in conflict, we plan to test the cognitive weighting of each. The rod and frame task is a test that involves the participant aligning a rod in a virtual room with their subjective vertical. When the presented virtual room is tilted, it can alter their subjective vertical estimate towards the direction of the tilt. We will simultaneously be using the GVS to alter vestibular cues involved in the creation of subjective vertical by simulating the vestibular nerve through the skin. During a ramp up phase of the GVS, participants feel as though they are tilting to one side and decrease in postural stability. We hypothesize that the participants' sense of vertical from the rod and frame task will be biased towards the feeling of vestibular tilt in a GVS condition compared to their sense of vertical in a no GVS condition. However, when the visual and vestibular cues are in conflict (i.e., when the visual cues from a tilted room biases subjective vertical in one direction and GVS biases the subjective vertical in the opposite direction), the visual cues will be dominant in creating the participants perception of vertical, resulting in errors that are still biased towards the tilt of the frame.

Two-Phase Statistical Sampling Methods for Parameter Estimation
Leah Chincio

Sampling methods play a crucial role in statistical analysis, impacting the accuracy and efficiency of parameter estimation. Two-phase sampling is often used in studies where collecting full data on all subjects is costly or impractical. In the first phase, a large sample is gathered with basic information, while a smaller subset is selected in the second phase for more detailed measurements. This approach helps maximize efficiency while minimizing costs. For example, in a medical study on disease risk factors, basic health records may be collected for all patients in phase one, while more expensive genetic testing is conducted only on a subset in phase two. The goal of this study is to compare the performance of three two-phase sampling techniques (random, case-control, and Goodness-of-Fit based (GOF) sampling) to determine which provides the most efficient estimates for studying binary outcomes. We conducted simulation studies in R to compare the variance of association parameter estimates across three sampling methods, then applied these methods to real-world data to validate the observed patterns. Preliminary results suggest that all sampling methods yield accurate estimates of the association parameters, but GOF sampling achieves the least variance. The findings highlight the advantages of GOF sampling in logistic regression applications, offering insights for improving study

designs and reducing data collection costs. This research contributes to the broader discussion on optimal sampling strategies, providing a framework for selecting efficient methods in statistical modeling.

Understanding Medical Event Heterogeneity During Intervention: Infants with Tuberous Sclerosis Complex (TSC) Enrolled in a Caregiver-Mediated Telehealth Program
Gabriel Marotti

The heterogeneity of the seizures experienced by those with TSC can significantly impair the child's learning capabilities if left unchecked, but their subsequent manifestations remain obscure. The present study investigates TSC by medical event type, frequency, and consequence in a group of infants enrolled in a 12-week caregiver-mediated telehealth intervention program, using a mixed-methods coding system to track these variables. Parent-child dyads participated in an evidence-based caregiver-mediated program via telehealth focused on improving child communication and play skills. Dyads were randomly assigned to receive either intervention materials only or the materials and active coaching (n=21) through twice-weekly online sessions for twelve weeks. Session notes from both types of sessions (n=387) were coded in order to characterize medical event information. Nearly half (n=10) of the active intervention group experienced at least one seizure during active intervention, most being partial or focal seizures (n=21). The seizure frequency across participants ranged from zero to four, the latter of which occurred in two different participants. There were a total of 14 hospitalizations during the intervention. Within the active intervention group, patterns observed both before and after seizures such as heightened overstimulation, agitation, and gravitation towards certain toys were also observed. Overall, there was a high rate of participants in the active intervention group who had at least one seizure during their active intervention period. This range of participant experience should be further examined to connect seizure patterns and environmental stressors to behavioral changes.

Understanding the Role of the Stem-Loop Structure in HTLV-1 gag-pro Frameshift Efficiency
Mwanday Yamegni

Many viruses use programmed -1 ribosomal frameshift (-1 PRF) sites to permit the synthesis of viral proteins encoded in alternative reading frames. The HTLV-1 gag-pro frameshift site includes a seven-nucleotide slippery sequence, a six-nucleotide spacer, and an 11-base-pair stem-loop. We hypothesize that the stem-loop is important for determining its frameshift efficiency based on previous research on the HTLV-2 gag-pro frameshift site, which is similar in structure to the HTLV-1 gag-pro frameshift site. While the slippery sequence and frameshift site function of HTLV-1 were previously established, its frameshift efficiency is unknown and the role of the downstream RNA structure is unexplored. In our preliminary studies, we measured the frameshift efficiencies for a wild-type HTLV-1 gag-pro frameshift site, an equivalent site lacking the stem-loop, and for the wild-type HTLV-2 gag-pro frameshift site.
Preliminary data suggests that removing the stem-loop from the HTLV-1 gag-pro frameshift site reduces the frameshift efficiency. This is consistent with what we would expect from previous literature. While we initially anticipated that HTLV-1 and HTLV-2 frameshift sites would produce similar frameshift efficiencies, our preliminary results indicate that the HTLV-2 site has a frameshift efficiency that is just over 2 times higher than the HTLV-1 gag-pro frameshift site. Before concluding, we must repeat the experiments in triplicate to confirm these findings. To complete those experiments, we will synthesize and purify reporter RNAs for the three frameshift sites and then measure frameshift efficiency using a dual-luciferase assay. If the frameshift efficiencies of HTLV-1 and HTLV-2 sites are consistent with our

preliminary results, follow-up experiments will be conducted to explore the underlying causes. Overall, this research will allow us to publish the first quantitative measurement of the HTLV-1 gag-pro frameshift site and put it in a greater context using related viral frameshift efficiency.

The use of eDNA to monitor pollinator visitation in Ascott Hills micro-forest
Ashley Lee

Pollinators are crucial to the growth in agriculture and biodiversity in crops and other flowering plants (Tepedino,1979). However, there is a global decline in the biodiversity of pollinators, which is caused by the decrease in biodiversity of pollen and nectar-producing plants (et al., Frund 2010). Thus, there is an importance in identifying what and how many pollinators visit certain environments. Despite this, it is difficult to monitor pollinator visitation during all hours of the day, thus a method is needed to account for the hours a researcher cannot physically be on-site. This can be done through eDNA (environmental DNA). Environmental DNA is DNA collected from the residual matter left by an organism. For this experiment, the flowers Milkweed, California Fuchsia, California Buckwheat, Showy Penstemon, Sticky Monkey Flower, and Elderberry at the micro-forest in Ascott Hills were swabbed with plastic and cotton swabs. The DNA was then extracted, ran through PCR, and quantified for data analysis via GNAT. After analysis it was found that there were pollinators such as Hymenoptera apidae and Passeriformes turdidae visiting the flowers in the micro-forest, meaning that eDNA is a method that can be used for monitoring pollinators, while also compensating for the pollinators that cannot be observed during the day.

Using RBG color values to track leaf development in Limonium perezii
Hannah Kotek

Many plant species exhibit observable color changes during leaf development, where young leaves present pink and gradually turn green as the leaf matures. Limonium perezii (Stapf) F.T. Hubb, a salt-secreting halophyte native to the Canary Islands exhibits this phenomenon. There are no current methods to track leaf development based on field observations such as color, which prompts an investigation into easily accessible and reproducible ways to do so. Red, Green, and Blue (RGB) values provide a quantifiable measurement of color, which when correlated with developmental markers including stomatal and salt gland density, and leaf area, demonstrate the relationship between color and stages of leaf development. Limonium perezii leaves at various stages of development were digitally imaged under uniform light and RGB values determined. Leaf area and specific leaf area (ratio of leaf area to leaf dry mass), and stomatal and salt gland density of both the adaxial and abaxial surfaces were measured. A strong, positive correlation between R values and stomatal and salt gland densities was found for both the adaxial and abaxial surfaces, as well as a moderate negative correlation between B values and these densities. There was no correlation between G values and either of the densities. Based on this preliminary data, it is evident that color can be used to characterize and quantify stages of leaf development. Further investigation into the relationship between leaf area and specific leaf area will provide more concrete parameters for stages of leaf development in L. perezii.

Va'a & Vessel: Clay as a Medium of Oceanic Identity
Danny Halle

In Pacific Islander traditions, the va'a (canoe) is more than a vessel; it is a bridge between lands, a carrier of stories, and a symbol of resilience. Similarly, the vessel—whether a canoe or a clay object—serves as a passage for movement, preserving and transforming identity, history, and cultural narratives. Va'a &

Vessel explores the relationship between materiality, tradition, and contemporary expression by using ceramics to challenge how Indigenous art is perceived and defined. Who decides what is considered art? In contemporary contexts, Indigenous creations are often reduced to artifacts rather than recognized as dynamic and evolving forms of artistic expression. Through hand-building, wheel throwing, carving, and glazing, I seek to bridge traditional Oceanic symbolism with contemporary artistic practices, creating works that speak to the values of voyaging, cultural resilience, and spirituality that are central to Pacific Islander life. I will be speaking on these values and describing traditional Oceanic symbolism with contemporary artistic practices while demonstrating on the potter's wheel. Much like the oceanic journeys of our ancestors, working with clay is a transformative process—one of shedding, adapting, and reclaiming. The fragility of an unfired pot, like a canoe before its maiden voyage, speaks to the vulnerability of cultural narratives in an evolving world. By embracing both traditional and contemporary methods, Va'a & Vessel fosters dialogue on the longevity of Pacific traditions and how material choices influence the ways identity is preserved, reimagined, and carried forward.

Validating the "T" in LGBTQ: How Our Labor Markets and Economic Institutions Can Better Support Transgender Employees
Morgan Keating

Transgender workplace discrimination occurs frequently against American employees who identify against the binary. The unfair treatment of transgender employees results in injustices such as unlawful hiring and firing, verbal, sexual, and physical harassment, and barriers to success compared to cisgender labor market participants. In turn, this discrimination leads transgender employees to feel unsafe, face difficulties achieving economic equality, and prominently have diminished well-being. The purpose of this study is to analyze the effect discriminatory actions have on transgender employees in the United States for both their well-being and economic success. By doing so, the outcome of this study is to develop recommendations for labor markets that create and promote a safe and further accepting work environment for transgender employees. The qualitative methodologies used include content analysis, archival study, and narrative research. Findings of this study showed that the education of transgender terminology and experiences, as well as diversity training for employers and employees, is crucial for creating a workplace that can promote transgender employees' safety and equitability. As the number of transgender-identifying people in America continues to rise, our society must adapt by abolishing discriminatory actions towards people who go against the binary. Every American, no matter gender, sexuality, or race, desires to work and succeed in the economy; the significance of this study is to emphasize practices for labor markets that allow transgender employees to do so without barriers.

Virtual Reality for Wellness: Investigating Its Impact on Undergraduate Stress Levels
Raihana Zahra

Stress levels among undergraduate students fluctuate throughout the academic year, prompting the need for effective stress management solutions. Virtual reality (VR) has emerged as a way to create digital experiences and environments to mitigate stress and promote relaxation. This study investigates the potential of VR as a stress management tool, examining how frequent engagement with VR applications affects stress levels among college students. A VR application has been developed using the Meta Oculus Quest 3 and Unity3D, incorporating researched gaming components aimed at supporting well-being. The application is influenced by previous studies that have shown potential in therapeutic settings and alleviating anxiety to inform the design choices, including genre and interactive elements. Additionally, the study leverages university VR resources to compare with existing wellness-

focused VR applications in the marketplace. Structured VR sessions are designed to assess user engagement and relaxation effects. Data collection incorporates pre- and post-session surveys based on the Perceived Stress Scale, along with qualitative insights from participant interviews, with the intent of exploring whether VR applications can contribute to a measurable reduction in stress levels. It also examines how a functional VR application, incorporating effective stress-relief components, compares to existing wellness-focused VR applications. By evaluating the effectiveness of VR in reducing stress, this research hopes to contribute to the broader field of wellness technology, and provide interdisciplinary insights into addressing student mental health and technology.

Waste to Wonder: A Classroom Experiment Growing Oyster Mushrooms and Unveiling the Power of Bioremediation

Jackson Spiecker

Global waste generation is projected to reach 3.4 billion tons annually by 2050, demanding urgent, sustainable solutions. Bioremediation, a process that uses microorganisms to break down pollutants, offers a promising strategy for sustainable waste management. This study asked: Can oyster mushrooms (Pleurotus ostreatus) biodegrade diverse substrates, and does substrate type influence degradation efficacy? Over two semesters (2023–2024), 15 lab sections (16 students/section) conducted a classroom experiment to test fungal degradation of 112 substrates, categorized into five groups: Natural Fibers, Plastics, Composites, Organic Matter, and Others. Substrates (e.g., cotton, plastic straws, banana peels) were incubated with oyster mushroom in jars containing moist cardboard as the main growth medium for 15 weeks, with bioremediation assessed via visual/olfactory analysis. A chi-squared test evaluated substrate-degradation associations. Results revealed stark contrasts: Organic Matter substrates were fully bioremediated (100%), while Synthetic Polymers (plastics) showed minimal breakdown (13.6% degraded; $\chi^2 = 32.39$, $P < 0.0001$). These findings confirm substrate type as a critical predictor of fungal biodegradation success, supporting our hypothesis (H_1). The study also demonstrated the educational value of hands-on bioremediation, with students contributing to data collection and analysis, and engaging in Sustainable Development Goal-aligned discussions on sustainability (SDG 4, 12, 15). This work underscores oyster mushrooms' great potential in biodegrading a wide variety of substrates, yet their limited efficacy on recalcitrant substrates, like many plastics, calls for reducing plastic production and consumption. The experiment provided students with a hands-on opportunity to explore sustainable waste management, deepening their understanding of bioremediation and environmental science.

WebMD: Diagnosing LMU's Biodiversity Using Environmental DNA (eDNA) from Spiderwebs

Sabriya Seid

Environmental DNA (eDNA) is the genetic material shed by organisms in the environment. It has emerged as a powerful resource through metabarcoding sequencing for assessing biodiversity, particularly in aquatic settings. However, in terrestrial environments, there are gaps in what substrate(s), filter(s), and machinery can collect airborne eDNA. Since 2020, spiderwebs have emerged as a promising novel substrate for eDNA collection. To assess animal biodiversity on the Loyola Marymount University (LMU) campus this study investigates the use of spiderwebs for eDNA collection. To evaluate this approach, six spiderweb samples were collected from an urban park field site, where traditional biodiversity field survey data exists for comparison. Then, 24 samples were collected from various locations on LMU's campus, including the Seaver Complex: outside of Seaver Hall, Pereira Hall, and Featherston Life Science Building, and the bluff area near the Sacred Hearts Chapel. Using sterile techniques, 5-6 spiderwebs in close proximity were pooled to create one sample, followed by eDNA

extraction, amplification for the Cytochrome Oxidase I gene region, and sequencing. Resulting sequences reads were processed, filtered for quality, and matched to closest taxonomic group using the NCBI BLAST tool. Preliminary results indicate that spiderwebs effectively capture a wide range of terrestrial eDNA, including vertebrates and invertebrates, and offer a non-invasive method for biodiversity assessment. The findings highlight the potential for spiderweb-based eDNA sampling as a complementary approach to traditional biodiversity monitoring techniques.

Where Good Republicans No Longer Go to Die: The Changing Character of Suburban Politics
Luke Roshkow

Originally overwhelmingly White and conservative, suburbs have become politically and demographically diverse. Past literature has shown the importance of suburban counties and how they have trended towards the Democratic Party, though the amount is debated. Much of this work focuses on changing voting patterns and their relation to racial demographics, income, education and gender. Though this research often looks at these factors more as a whole, rather than looking at them solely in the context of suburbs. Begging the question: how much have suburban counties shifted toward the Democratic Party and what role does income, race, and education contribute to this shift? Utilizing the MIT Election Data and Science Lab Harvard Dataverse, this paper will look at the change between the 2016 and 2020 election vote totals as well as from 2000 to 2020 in suburban and urban/suburban counties organized via income, demographics, and educational attainment. I expect that diverse, highly educated and high income suburban counties have shifted the most to the Democratic Party, while the inverse is true for less educated, lower income and less diverse suburbs. This will give a better understanding of what has led to this massive shift in suburban voting and its implications for the future of American politics.

"Woman, the Physician": Women's Access to Reproductive Health Information and Its Censorship in Britain and the United States, 1826–1895
Mary O'Callaghan

During the 19th century in Britain and the United States, male physicians began to replace the roles of female midwives and seized control of women's reproductive health knowledge and practices. This appropriation of knowledge was further amplified by the de facto censorship of publications containing women's reproductive health information as a consequence of movements against obscene literature. Following the passage of censorship laws, particularly the Obscene Publications Act of 1857 in Britain and the Comstock Act of 1873 in the United States, the de jure censorship of such publications had a legal basis. My research focuses on analyzing the ways by which women were able to circumvent these obstacles and access information, specifically concerning contraceptives. I analyze literature and corresponding advertisements published both before and after the passage of censorship laws that contained women's reproductive health information. I also examine newspaper articles in order to understand both public controversy in the era of de facto censorship and the legal ramifications for the publication and distribution of such literature in the era of de jure censorship. I argue that authors and publishers of both eras utilized methods to disguise information intended for female audiences, inviting them to read between the lines of texts to evade the notice of public opponents and censors. Ultimately, layers of concealment allowed women to acquire information despite efforts to prohibit their access. This research is important amidst current political efforts that seek to prevent women from accessing adequate reproductive healthcare and knowledge.

Xanthan Gum and Microbacterium sp. Enhance California Native Plant Germination Under Drought Stress

Atrina Bonihe, Isabelle Bermudez

With climate change becoming a growing concern, the issue of plant drought stress is on the rise. Plant growth-promoting bacteria possess numerous biochemical properties that promote plant growth under drought. In California, developing an inoculum is essential to promoting plant growth of native plants facing this issue. However, bacteria coated on seeds may not retain viability during storage before seeds are planted in restoration sites. A variety of bacteria were identified and characterized for different plant growth-promoting properties as well as tolerance to drought conditions using 20% polyethylene glycol (PEG). Five strains germinated in 20% PEG and were chosen for further testing. The biopolymers xanthan gum, gum arabic, carboxymethylcellulose, and sodium alginate were tested for their impact on primrose germination and bacterial viability over the course of four weeks. We found that xanthan gum worked best at retaining bacterial viability. Beach evening primrose was tested for germination under drought conditions using micropipette tips filled with sand, with seeds coated with each of the five strains of bacteria using xanthan gum. A One-way ANOVA test showed that bacterial strain 5A improved primrose germination under drought conditions. 16S rDNA sequencing identified the isolate as Microbacterium sp. Future analyses will further assess whether this bacterial strain will improve primrose root and shoot growth under drought stress and its potential for improving the effectiveness of seeding during restoration.

Student Index

A

B

C

D

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Biology

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Classics & Archaeology

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Communication Studies

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Biochemistry

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Economics

Brandon Dona-Velazquez
Psychology

Ryann Dorris
Biology

Joseph Douille
Mechanical Engineering

Kathryn Duff
Psychology

Frances Dygean
Psychology

E

Cassandra Erickson
Environmental Science

F

Lauren Fabre
Biology

Camryn Felipe
Health & Human Sciences

Andrea Felix
Sociology

Stephanie Flores
Biology

G

Mylaan Gant
African American Studies

Madeleine Gault
Film, Television, & Media Studies

Dzorgbenyui Gbagbo
Psychology

Madrid Ghanavat
Biochemistry

Marisa Gomez
Biology

Tyler Gonsowski
Biology

Gonzalo Gonzalez
Mechanical Engineering

Collin Griffin
Psychology

H

Giselle Haddad
Health & Human Sciences

Cameron Hajaliloo
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Laura Haushalter
History and Environmental Studies

Chase Haydel
Classics & Archaeology

Natalie Hedding
Biology

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Biology

Esmeralda Hernandez
Communication Studies

Dayja Hernandez-Brown
Communication Studies

Connor Hilbert
Economics and International Relations

Ava Hoeger
Physics

Natalie Hogenboom
Health & Human Sciences

Garrett Howard-Jimenez
Marketing and Management & Leadership

Haley Huntington
Biology

I

Samantha Ikenna-Obioha
Psychology

Yotanna Ikenna-Obioha
Psychology

Lainee Irribarren
Biology

J

Viraj Jain
Biochemistry

Charles Jenkins
Psychology and History

Hayden Johnson
Political Science

Edward Jones
Applied Physics

Valentina Juarez Huerdo
Health & Human Sciences

K

Alexander Kane
Political Science

Seema Kayali
Political Science

Morgan Keating
Psychology and Sociology

Olivia Kelleher
Chemistry

Anika Khurana
Health & Human Scienes

Maya King
Communication Studies

Carrie Knickrehm
History

Shreshta Kode
Biology

Hannah Kotek
Biology

Christopher Kramer
Political Science

L

Grace Landers
Biology

Mimi Landers
Biology

Weston LaRhette
Physics

Ashley Lee
Biology

Chloe Lee
Communication Studies

Colson Lee
Psychology

Nicole Li
Theatre Arts

Key Lige
Environmental Science

Paola Lopez de Cardenas
Biology

Francesca Lovato
Humanities

M

Taleen Madikians
Psychology

Emery Markey
Political Science

Gabriel Marotti
Psychology

Maricia Marquez
International Relations

Angelina Matar
Psychology

Tyler Matsumoto
Philosophy and Economics

Michelle Maxwell
Communication Studies

Molly McCoy
Health & Human Sciences

Reese McNally
Chemistry

Karen Medrano Gonzalez
Economics and History

Kennedy Melton
Biochemistry

Sophie Menendez
Biochemistry

Alexander Minor
Mechanical Engineering

N

Ava Nariman
Psychology

Sean Neal
Biology

Larissa Negom
Biochemistry

Maelani Nguyen
Health & Human Sciences

Mandoline Nguyen
Biochemistry

Tram Nguyen
Biochemistry

Areika Novella
Psychology

O

Gabriella O'Brien
Biology

Mary O'Callaghan
History and Classics & Archaeology

Caitlyn Olshausen
Health & Human Sciences

Katelin Olson
Psychology

Sarah Omachi
Psychology

Daniel Orr
Health & Human Sciences

Nigel Outley
Biochemistry

P

Farrah Padilla
Political Science

Patrick Panko
Economics

Kanna Parker
Economics

Anisha Patel
Health & Human Sciences

Andrea Payre Madrigal
Entrepreneurship, Marketing, and Environmental Studies

Maia Pecher
Psychology

Rebeca Perez
Political Science and Economics

A'Kaia L. Phelp
Computer Science

Christine E. Phelps
Biology

Kaitlin Pintens
Psychology and Philosophy

Christopher Porter
Applied Mathematics

Alexander Provenzano
Biology

Q

Madison Quick
Psychology

R

Alex Raji
Communication Studies

Perla Rand
Biology

Tanya Rasheesa
English and Classics & Archaelogy

McKenzie Reese
Psychology

Ryan Rengstorff
Biology

Brandon Ridgeway
Marketing

Raul Rivera
Psychology

Sophia Rivera
Health & Human Sciences

Gia Rizvi
Biology

Hannah Robins
Sociology

Neftali Rocha-Martin
Biology

Alyssa Rodriguez
Biology

Luke Roshkow
Political Science

Jaeden Rothrock
Statistics & Data Science

S

Nicolas Salkin
Physics and Mathematics

Ben Santana
Biochemistry

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Political Science

Sabriya Seid
Biology and Studio Arts

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Biology

Alexander Selby-Lara
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Sophia Shoham
Biology

Alexa Siglar
Environmental Science

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Psychology

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Film & Television Production

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Biochemistry

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Chemistry

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Environmental Science

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Health & Human Sciences

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T

Dylan Tang
Physics

Hannah Tate
Psychology

Metasebiya Tefera
Psychology

Alexandra Thompson
English

Ella Tillmann
Psychology

Lauryn Tolliver
English

Ngoc K. Tran
Computer Science

Gabriella Trujillo
Health & Human Sciences

Gigi Truong
Psychology

V

Adeline Ventrone-Ortega
Political Science

Elijah Vera
English

W

Louis Y. Wang
Health & Human Sciences

Megan Warner
Chemistry

Hayden Washington
Biology

Elyssa Watson
Communication Studies

Amanda Williams
Psychology

David Williams
Psychology

Evan Wu
Biology

Lorenzo Wullschleger
Biology

Y

Mwanday Yamegni
Biochemistry

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Philosophy

Quintin Yates
Physics

Z

Raihanna Zahra
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Biochemistry

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17

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