Loyola Marymount University
Office of Research and Creative Arts

Eighteenth Annual

'18

Undergraduate Research Symposium

Loyola Marymount University
Office of Research and Creative Arts

URS 18 Program Cover Artwork
London Boyd, BFA

A Welcome from the Office of Research & Creative Arts

March 20, 2026

Dear LMU Students, Faculty, and Staff,

Welcome to the Eighteenth Annual Undergraduate Research Symposium! For nearly two decades, this signature event has been a cornerstone of Loyola Marymount University's academic tradition, celebrating the very best of our institution's faculty-mentored undergraduate research and creative scholarship.

At its core, the symposium recognizes the intellectual achievements of our students and reflects our community's shared commitment to supporting and elevating student inquiry. This year, we invite you to engage with the 132 posters and creative projects set up throughout University Hall, listen to and participate in the more than 100 oral presentations, panels, and arts showcase presentations, and share a meal or some coffee with friends, family, fellow presenters, and the larger LMU community.

We are pleased to feature the work of over 336 students from all six undergraduate colleges and schools. Among these sessions, students wrestle with issues including politics from a moral, racial, and ethical perspective. They explore various areas and concerns in health, including stages and perception of menstrual cycles, research on postpartum experiences, and men's public stigma about seeking assistance for mental health. Student discussions range from microforests and urban restoration in Los Angeles to the effects of the 2025 wildfires and heavy metal bioaccumulation in marine mussels to the pigment content to perennial plants native to the Canary Islands, to early Christianization in Rome to the All-American Superhero, the Gothic Female Body, and a Black Marxist analysis of Black horror cult films. Students dive into the intersection of creative work and rapididly emerging technology, showcasing a film discussing the process and exploration of the AI Film Making Process. Highlighting the importance and integration of LMU's mission, the CSJ Center for Reconciliation and Justice returns to host its annual Social Justice in Action: Service and Engaged Learning Experiences with 11 student panelists, their largest group yet. Lastly, this year we will feature our first-ever graduate student panel, sharing insights and discussing benefits of doing graduate-level research and creative projects with our undergraduates.

The Undergraduate Research Symposium provides an excellent platform for all members of the LMU community to engage with students who have immersed themselves in thought provoking questions and global issues. In an increasingly complex world, these projects exemplify the deep learning and integrative thinking that distinguish an LMU education.

Congratulations to all presenters and to the faculty mentors who make this work possible. We are honored to celebrate your achievements at the 2026 LMU Undergraduate Research Symposium.

Sincerely,

Maureen P Weatherall

Maureen P. Weatherall, Ed.D.
Vice Provost for Enrollment Management
and Academic Engagement

Elizabeth Wimberly-Young, M.F.A.
Assistant Vice Provost for Student Research,
Learning, and Innovation

Carina Flores

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

Schedule of Events

Friday, March 20, 2026

9:30am - 1:00pm	**THIS IS HONORS** University Hall Roski
12:00pm – 3:00pm	**REGISTRATION** University Hall Suite 3000
1:00pm – 2:15pm	**ORAL SESSION I** 1st, 2nd & 3rd Floor, University Hall
2:20pm – 3:35pm	**ORAL SESSION II** 1st & 2nd Floor, University Hall
2:30pm – 4:30pm	**BIOLOGY DEPARTMENT ORAL SESSION** Ahmanson Auditorium, University Hall
3:40pm – 4:55pm	**ORAL SESSION III** 1st & 2nd Floor, University Hall
3:40pm – 4:55pm	**GRADUATE STUDENT PANEL** McIntosh, University Hall
4:30pm – 6:00pm	**POSTER SESSION** 1st Floor, University Hall

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

Loyola Marymount University
Office of Research and Creative Arts

Eighteenth Annual

18

Undergraduate Research Symposium

Oral & Poster Sessions

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

University Hall Ahmanson Theatre: Social Justice in Action: Service and Engaged Learning Experiences		
Presenters	**Title**	**Advisors**
Kemi Agbalaya, Rahma Al Lamki	Artsmart Mentorship Program	Sr. MaryAnne Huepper
Dhwani Jain, Sara Francis, Toni Bluford, Om Valia	Digital Veterans Legacy Project - Social Justice in Action: Service and Engaged Learning Experiences	Sr. MaryAnne Huepper, Julianne De La Cerda
Ayden Brown	Local Realities to Global Goals: Advancing the SDGs in Iberia Parish	Jeffrey Thies
Daniel Shew	MATHi & The Futo Torro Region In Senegal	Madhu Viswanathan, Sr. MaryAnne Huepper
John Kassabian	Social Justice in Action: Mapping Soil Contaminants from the 2025 Los Angeles Fires from the Community Action Project's (CAP.LA) Test Results.	Sr. MaryAnne Huepper
Yvette Castellanos, Juliana Roman	Women's and Maternal Health Engaged Learning with South Central LAMP	Sr. MaryAnne Huepper
University Hall 1218: Governing Growth: Public Policy, Political Economy, and Development Narratives Across Regions		
Kanna Parker	Analyzing the Dynamics of Environmental Policy Quantity in the U.S.	Dorothea Herreiner
Aida Yezalaleul	The Belly of the Boom Years: A Qualitative Study of the Winners & Losers, Success & Failure, and Impetus Behind Urban Megaprojects in Ethopia	Jodi Finkel
Diego Luis	Beneath the Miracle: Public Attitudes Toward South Korean Chaebols	Feryal Cherif
Dana Christensen-Levy	Macro x LatAm: Teaching Intermediate Macroeconomics with Lessons from Latin American Economies	Konstantin Platonov
University Hall 1222: Art, Existence, and Epistemology: Cross-Currents in Modern and Classical Thought		
Yujie Wang	Beyond the "Final System": Schelling's Development on Kant's Philosophical History	Marcela Garcia Romero
Solana Blakely	The Essence of Existential Humility in Spanish Surrealist Paintings	Jason Baehr

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

Chase Haydel	Paideia and Democracy: From Classical Athens to Modern Civic Education	Katerina Zacharia
Jack Richardson	Theorizations of Heidegger's Time-Space and Their Epistemological Quandary	Ian Moore
Carmela Michaeli	Writing Art: The Legacy of Jackson Pollock as it Intertwines with the Literary Interpretation of an Artistic Movement	Damon Willick
University Hall 1402: Cross-Domain Physics: Unifying Principles from Galactic Structure to Muscle Metabolism		
Kate Murphy	Analog Convection of Icy Ocean Worlds	Emily Hawkins
Ford Bannister	A Catalog of Low-Mass Pre-Main Sequence Stellar Objects for use in Refining Stellar Relations and Models	Rajiv Uttamchandani, John Bulman
Lucas Canestraro Ahnen	Magnetic Susceptibility as a Function of Temperature	Jeff Phillips
Isaiah Tyler	Modeling Galactic Rotation Curves Using Newtonian Fractal Dimension Gravity	Gabriele Varieschi
Matthew DuBois	Oceanic Flow Efficiency through Novel eDNA Collection Devices	Emily Hawkins
Audrey Hunnicutt	Using Near-Infrared Spectroscopy to Assess Skeletal Muscle Oxidative Capacity and Cardiorespiratory Fitness	Robert Musci
University Hall 1403: Storying Black Life: Media Evolution, Horror, and Oral Histories		
Walter Bridgewater IV	Greenlights to Cancellations: The Evolution of TV and Black Media	Michelle Amor Gillie
Isis Gullette	"There's (Black) people living under the stairs"; a Black marxist analysis of Black horror cult films in the 1990s and geographies of despair in horror spatial imagery	Jennifer (Jae) Williams
Eve Harrison	View Park Oral Histories Project	Nicolas Rosenthal
University Hall 1404: From Misinformation to Meaning-Making: Social Cognition and Health Equity across Diverse Populations		
Areika Novella	The Association between Health Literacy and Coordinated Care among Latino/a Adults with Chronic Disease	Timothy Williamson, Whitney Brymwitt

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

Kaitlin Pintens	How Politics and Social Media Shape Misinformation and Confirmation Bias about Autism	Máire Ford
Kathryn Duff, Isabella Casto, Brandon Dona-Velazquez, Evan Wu	Mediating Effect of Self-Focused Reflective Writing on the Relationship Between Depression and Guilt and Shame	Máire Ford, Timothy Williamson
Adrian Casiano	Patient Centered Communication, Trust in Doctors, and Trust in the Healthcare system among Lesbian, Gay, and Bisexual adults in the U.S.	Timothy Williamson
Amanda Williams, Christie Shum, Christina Mau	The Role of Self-Conscious Affect, Neuroticism and Gender in Independently Predicting Sense of Belonging	Timothy Williamson, Máire Ford
University Hall 1858: Fractured Systems: How Morality, Regulation, and Global Narratives Shape Local Realities		
Khamalia Williams	Morality in Politics: Understanding the Role of Moral Socialization in Politics	Allison Noyes
Sabina Prieto	Uneven Enforcement: How Mexican Food Safety Regulation Shapes Small Exporters' Access to the U.S. Market	Christopher Jackson
Jack Dhein	The United States, China, and Nigeria: A Media Study in Structural Imperialism	Christopher Finlay
Raevo Panigoro	Venice Beach, a Utopian Dystopia	Clinton Carl, Ruben Martinez
University Hall McIntosh: Specters, Screens, and Systems: Contemporary Cinema at the Edge of Aesthetics and Politics		
Olin Burke	The Arthouse Blockbuster: Political Aesthetics in Hollywood Cinema	Anupama Prabhala
Alexia Herrmann	The Intersection Between Fictional Cinema and the World of Dreams	Anupama Prabhala
Francis Abradu-Otoo	Mimesis and the Virus Embedded in Virality	Anupama Prabhala
Lily Wood	Netflixication: The rise of algorithms and streaming services and the decline in the quality of film, television, and everything in between.	Anupama Prabhala
Eamonn Welliver	On Cinematic Ghosts as Societal Symptoms of Repression	Anupama Prabhala
Logan Hoover	Reconstructing Aura: Spectacle, Stardom, and Presence in Contemporary Cinema	Anupama Prabhala
Jessica Hanassab	Woman as the World Ends: Abjection, Care, and the Feminization of Survival	Anupama Prabhala

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

Presenters	Title	Advisors
Alyssa Rodriguez, Lainee Irribarren, Hayden Washington	Physiological performance of the mussel Mytilus galloprovincialis across decreasing salinities	Maria Christina Vasquez
Paola Lopez de Cardenas, Julia Domanskis, Isabella Del Castillo	Is Age Just a Number? An Analysis of Taphonomy in Older Deposits at the Rancho La Brea Tar Pits	Wendy Binder
Sofia Carranza	Not All Chicks Eat the Same: Hatch Order and Diet in Great Black-backed Gulls	Kristen Covino
Noopur Barve	DNA Extraction & Metabarcoding to Assess the Diet and Nest Feeding Behavior of the Great Black-backed Gull (Larus marinus)	Kristen Covino
Stephanie Flores	How Micro-forests influence Biodiversity in Los Angeles	Demian Willette
Ashley Lee	The use of eDNA to monitor pollinator visitation in Ascott Hills micro-forest	Demian Willette
Nikki Chun	Accuracy of parameter estimation for a simple gene regulatory network model is sensitive to network motif, number of parameters estimated, and magnitude and direction of regulatory relationships	Kam Dahlquist, Ben Fitzpatrick
Mandoline Nguyen	Disruption of the Embryonic Serotonergic System Affects Neural Crest Derivatives in the Heart	Max Ezin

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

University Hall 2002: Stories, Screens, and Struggles: The Politics of Work and Narrative in Modern Media		
Presenters	**Title**	**Advisors**
Karim Malik	Bringing "The Stray Spirit" to Life: A Scene Study and Script Presentation	Susan Scheibler
Sevilla Chapman	Social Media and the Cinematic Experience: Motivations, Engagement, and Sharing	Ivy Fofie
Sophie Starck	Unpaid Internships in Creative Fields	Brian Sisselman
Lincoln Burger	Western Movies and the Mythology of America	Mikki Kressbach
University Hall 2228: Measuring What Matters: Novel Devices, Digital Platforms, and Molecular Models Advancing Human and Planetary Health		
Nathan Yasnovsky, Joseph Nash	Accelerometer-Based Activity Recognition to Support Calorie-Free Feedback in an Intuitive Eating Mobile Platform	Delaram Yazdansepas
Cecilia J. Zaragoza, Ngoc Kim Ngan Tran	Major Code and Data Migrations for GRNsight, a Web Application for Visualizing Gene Regulatory and Protein-Protein Interaction Network Models	John David N. Dionisio, Kam D. Dahlquist
Nigel Outley	Quantifying the Impact of Stem-Loop Length on the HTLV-1 gag-pro Frameshift Efficiency	Kathryn Mouzakis
Alexis Arle	Use of a Smartphone App Influences Diet Quality among College Students	Hawley Almstedt
University Hall 2232: Voices Under Pressure: Ambition, Silence, and Resistance in Contemporary Political Life		
Makenzie Ganje	The 2024 Election and the Crisis of Gendered Political Ambition	Richard Fox
Mia Gutierrez	Breaking the Gerontocracy: Conditions for Electing Young Officials in Local Politics	Fernando Guerra
Logan Venhoff	Silent Citizens: How Self-Censorship Affects Political Behavior	Nathan Chan
Kristal Salazar	Trust, Place, and Resistance: The Impact of ICE Raids on Latino Political Attitudes	Richard Fox

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

University Hall 2416: Racial Becoming: Eldership, Misinformation, and the Politics of Blackness		
Amir Edwards	Black Identity: Soulaan as an Interference to Nigrescence	Magaela Bethune
Sean Bethune II	Generational Elders as Stabilizing Forces for Transition-Aged Black Males in a Post-Covid-Context	Magaela Bethune
Mariah Allen	The Role of Political Misinformation in Bolstering Racial Domination	Magaela Bethune
Ethan Carter	Wages of Blackness: The Hollow Promises of the Soulaan Movement	Magaela Bethune

University Hall 1218: Materializing Faith: Worship, Imagery, and the Christianization of Early Rome		
Milka Zekarias	The Early Christianization of Rome: Practice and Imagery of the Christian Faith	Kirstin Noreen, Marc Reeves
Elizabeth Parr	The Evolving Relationship Between Christian Worship and Artistic Programs in Roman Churches	Kirstin Noreen, Marc Reeves
University Hall 1403: Beyond the Precedent: AI Crimes, Gender-Affirming Rights, and Reimagining Institutions		
Nora Smith	After Ashcroft: Prosecuting Artificially Generated Child Sexual Abuse Material in the AI Age	Evan Gerstmann
Mateo-Luis Planas	Beyond Skrmetti: A Constitutional Case for Gender-Affirming Care	Evan Gerstmann
Tze Fung Kao	Intellekt Dezinformatsia: Artificial Intelligence, Regime Type, and the Future of Information Warfare	Jennifer Ramos
Jonathan Wallace Myers	Radical-Humanistic Institutionalism IR Theory—Reimagining Neoliberal Institutions to Improve the Upholding of Human Dignity and Flourishing	Jennifer Ramos

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

University Hall 1858: Sporting Myths and Modern Realities: Emotion, Identity, and Inequality in Competitive Spaces		
Carter Paige, Christian Cabero	All-American Superhero	Negin Ghavami
Summer Alexander	Feelings on the Field: The Relationship between Emotions and Sports Performance	Josette Banks
Zachary DeGuzman, Mira Chaffin, Seth Fernando, Matthew Wong	Men's Public Stigma of Mental Health in the Media and the Implications for Help-Seeking Attitudes	Negin Ghavami
Jayesh Damaraju	The Rise to Formula One: Underrepresented Athletes and Success in Inaccessible Sports	Gregory Ruzzin

ORAL SESSION III
3:40 pm – 4:55 pm
1st, 2nd, & 3rd Floor, University Hall

University Hall 1402: Qualitative Research in Health and Society Panel		
Presenters	**Title**	**Advisors**
Maya Barnes	Black Women's Experience in Maternal Healthcare System (Qualitative Research in Health and Society)	Rachel Washburn
Anika Karan	Differing Perspectives of the Pharmacological Treatment of ADHD	Rachel Washburn
Lyla Bollag	Art Therapy: Effective Non-Medication Therapy Treatment Strategies For ADHD and Dyslexic Individuals	Rachel Washburn
Tisha Eve Custodio	On the Borderline: Exploring the Lived Experiences of Individuals with Borderline Personality Disorder (Part of panel titled: Qualitative Research in Health and Society)	Rachel Washburn
Andrea Ramirez	What It Takes to Stay Afloat: Financial Strain and the Student Experience	Rachel Washburn
University Hall 1222: Capital Markets, Reproductive Policy, and AI Sentiment in a Transforming Society		
Kelly Supangat	The Capital Asset Pricing Model in the 21st Century: Accuracy, Limitations, and Relevance in the U.S.	Greg Leo
Olivia Gallagher	How Does Sex Trafficking Change With Abortion Rights?	Greg Leo, Prachi Jain
Sofia Moskaleva	Public Sentiment Towards AI on Reddit: Evidence from Lexicon-Based and Deep Learning Models	Greg Leo
University Hall 1403: New Insights into the Early Bronze Age Society		
Isabella Fernando	An Overview of Pottery from Jordan in the Early Bronze Age	Caroline Sauvage
William Kulewicz	PLATING IN THE TOMBS AT BAB EDH-DHRA (EARLY BRONZE AGE)	Caroline Sauvage
Margaret Chaney	The Quest for God: Cult in the Early Bronze Age	Caroline Sauvage
Ryan Bazyouros	The Study of Basalt in the Early Bronze Age	Caroline Sauvage
David Vargas	Trade and Imports in the Southern Levant	Caroline Sauvage

ORAL SESSION III
3:40 pm – 4:55 pm
1st, 2nd, & 3rd Floor, University Hall

University Hall 1404: Embodied Narratives: Gender Dynamics, Horror Aesthetics, and Physiological Realities		
Lauren Kim	Generation Z Women's Experiences with Gender Dynamics in the Sports Industry	Allison Noyes
Sadie Nanson	The Gothic Female Body: Fairy Tales Meet Gynaehorror in "The Husband Stitch" and The Bloody Chamber	Alexandra Neel
Tiia Lachance	Menstrual Cycle Phase Impacts: Cognition, Balance and Perception	Chela Willey, Alexandra Sturm
University Hall 1858: How Media, Migration, and Class Narratives Reshape U.S. Politics		
Lily Pellillo	Anyone Can Pick Up a Microphone, But Can They Flip the Election? An Analysis of Podcasts in Terms of the 2024 Presidential Election	Michael Genovese
Antoine Corbani	Does Welfare Fare Well? Understanding Socio-Political and Theological Attitudes Towards Western European Welfare Systems	Gabriele Magni
Lucy Curran	Earned Pauperism: Valorized Poverty and the Moral Logic Behind White Working-Class Opposition to Welfare Reform	Andrew Dilts
Amelie Favre	Money Talks, Democracy Walks: How Billionaires Are Reshaping U.S. Politics	Michael Genovese
Edward Snyder	Red, Blue, and on the Move: The Political Implications of Interstate Migration in the US	Gabriele Magni
University Hall 2002: Rethinking Policing and Youth Justice in Racialized Communities		
Isabella Andrade	The Battle Between Latine Self-esteem and the School-to-Prison Pipeline	Juan Mah y Busch
Christjin Bell	Fun in the Sun and Policing: The Influence of Relational Policing on Police Clearance Rates	Diane Terry
Shreeya Sahasrabudhe	Rehabilitating the Juvenile Justice System	Julia Wade
University Hall 2232: Film Presentation		
Max Page, Austin Wade, Gia Anelle	Generate This: A Practical Exploration into the AI Film Making Process and Systematic Teaching in the Indie Film World	Justin Winters

ORAL SESSION III
3:40 pm – 4:55 pm
1st, 2nd, & 3rd Floor, University Hall

University Hall McIntosh: Graduate Student Panel		
Presenters	**Graduate Program**	**College**
Casey Joseph	Educational Leadership for Social Justice (Ed.D.)	School of Education
Nora Lopez	Pastoral Theology	Bellarmine College of Liberal Arts
Malane Morales-Van Hecke	Educational Leadership for Social Justice (Ed.D.)	School of Education
Chibuike Okeagu	Pastoral Theology	Bellarmine College of Liberal Arts
Gabrielle Sigrist	Yoga Studies	Bellarmine College of Liberal Arts

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

ARTS | MEDIA | COMMUNICATIONS		
Presenters	Title	Advisors
Victoria Valenzuela	Beyond Spectacle: Camp and Comedy as Resistance in U.S. Latinx Film & TV	Juan Mah y Busch
Cori Graham	Costume Designing the York Mystery Plays	Leon Wiebers
Mikaela Huarcaya	Endorser Perception in Modern Marketing: Celebrity vs. Social Media Influencer Endorsements	Noriko Sato Ward
Brady Allison	The Impact of Television Series in Expanding Film Franchises Through Star Wars: The Clone Wars and Star Wars: Rebels	Sue Scheibler
Kolton (Koko) Leong	Marketing Without Billboards: Innovative Marketing in Hawai□i's Regulated Landscape	David Choi
Eva Guillory	Pop Culture and Graphic Design in LMU's 1960s Theatre Playbills	Stacey Cabaj
Madeline Wilson	The Tree of Life: How a Forgotten Aynagogue in Greece Became a Symbol of Resilience	Holli Levitsky

HUMANITIES | SOCIAL JUSTICE		
Presenters	Title	Advisors
Clarke Hamilton	Heteronormative Deniability: The Suppression, Erasure, and Dehumanization of WWII Korean "Comfort Women" and Enslaved Black Women	Stella Oh, Luciano Pimienta
Karina Sanchez	The Authenticity Economy: Mexican Food, Cultural Commodification, and Gentrification at Cafe Tondo	Juan Mah y Busch
Damian Waller	From Expression to Empowerment: Youth Artivism and Positive Youth Development	Carla Ramirez, Diane Terry
Sam Qualls	Herpes: A Cultural Biography	Mairead Sullivan
Fiorella Salazar, Mary Awofodu	The Impact of Federal Education Cuts on Underrepresented Students	Maria Barragan
Sophia Rivera	Is the Doctor Worth It? The Relationship between Immigration Policies and Latinx Immigrants' Access to Healthcare	Juan Mah y Busch

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

Ayden Brown, Sara Francis, Toni Bluford, Om Valia	Local Realities to Global Goals: Advancing the SDGs in Iberia Parish	Jeffrey Thies
Genevieve Von Manti	The Long-Lasting Effects of "Taken" (2009) on the Depiction of Human Trafficking in Media, and How it Alters the Audience's Ideology of Trafficking	Mairead Sullivan, Wei Si Nic Yiu
Lisette Keating-Gonzalez	Notions of Latina Beauty Represented in Latina-Owned, Makeup Cosmetic Brands	Juan Mah y Busch
Mariah Allen	Policing Post Pandemic: Examining Angelenos trust in local police departments before and after COVID-19	Brianne Gilbert, Chhandosi Roy
Madison Wallace	The Potential Use of Generative AI Technologies in the work of Female-led NGOs to redefine Peacekeeping: A Focus on the Russia-Ukraine War	Jennifer Ramos
Eden Mehrotra	Race and Recovery: Where Do We Go from Here?	Magaela Bethune
Morgan Keating	Reframed Not Dismantled: Mother Blame in Disability, Genetics, and Memoirs	Amanda Apgar
Paolo Mah y Busch	The Relationship Between a Footballing Organization and it's Latine Fans	Juan Mah y Busch
Brady Allison	Sullivan Lab: A Cultural Study of the Herpes Simplex Virus	Mairead Sullivan
Laura Haushalter	Taxidermy and technology: A history of climate change exhibitions at 20th- and 21st-century American museums of natural history	Amy Woodson-Boulton

SCIENCE | ENGINEERING | MATH		
Presenters	Title	Advisors
Adam Neulander, Dayyan Chaudhri	Accelerometer-based MET Estimation for Wearable Energy Expenditure Monitoring	Delaram Yazdansepas
Scott Wilson	Analysis of LexA expression in the brain using L-TRACE, a new cell lineage tracing tool for Drosophila development	Cory Evans
Damian Barrios	Applications of 8-methanolquinoline as a Photo-base to Deprotonate Weak Acids	Ryan Hunt
Rae Sheng	Assembly of Microcontroller for InterOrbital 3.0 CubeSat Kit	Gustavo Vejarano

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

Nicole Won, Manvi Singh, Matthew Barbee, Sophia Vukadinovich	Bilingualism and its Effect on Cognitive Performance Using the Multicultural Neuropsychological Scale	Alberto Fernandez
Ryan Khosravi, Alice de Sa Costa Pereira, Korina Apostol, Liam Moore	Bioremediation of Chromium 6 with Bacillus Safensis Malate Dehydrogenase	Brianna Bibel
Jaida Andrews, Yayra Gbagbo	The California Reducing Disparities Project	Ben Fitzpatrick
Ryan Bui	Characteristics of Carpobrotus edulis that promote slope erosion	Phillipa Drennan
Mariam Tadevosyan, Elle Komara	Coastal Construction and Carbon Storage: A Comparative Study of Sediment Stored CO2 Across Development Stages	Sarah Bittick
Viraj Jain	Computational Investigation of the Structural and Electronic Effects of Phenyl, Alkyl, and Halogen Fully Substituted Acenes	Emily Jarvis
Isabella Cuellar, Sara Epps, Addy Kusek	Concussion history and balance assessment in healthy adults	Sarah Strand
Noah Dangcil	Design of Robotic Vehicle for Storm Drain Analysis of Nutrients and Contaminants	Emily Hawkins, Sarah Bittick
Alexander Chavez, Augustus Soedarmono	Developing a protocol for evaluating in vitro transcribed RNA integrity using the Agilent 4150 TapeStation	Kathryn Mouzakis
Eva Chahbazian	Development of a Carbon Accounting Platform at a Higher Education Institution	Ian McKeown
Abydale Sotelo	DFT and TD-DFT Investigation of Structural, Electronic, and Binding Properties of Fully Substituted Twistacenes	Emily Jarvis
Beverly Mutuku	Diabetes Risk in U.S. Adults: Associations with Depressive Symptoms and Vigorous Physical Activity	Le Wang
Chloe Hooker	Differences in Peripheral Blood Mononuclear Cell Mitochondrial Function Between Men and Women	Robert Musci
Kennedy Melton	Do base triples form in the HTLV-1 pro-pol frameshift site?	Kathryn Mouzakis
Rebecca Olvera, Matisse McKenna, Sofia Carranza	Does parental provisioning shift throughout chick development in Great Black-backed Gulls?	Kristen Covino

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

Joe Alapat, Matthew Schoenbachler, Donnie Sarabia, Anthony Tobar, Bryce Dryden, Joaquín Olavarria, Andrei Dudikoff	Effects of micro-droplet cooling on electronic surfaces	Mahsa Ebrahim
Charmaine Wong	Effects of Psilocin on Muscle Movements of the Developing Embryo	Maxallende Ezin
Nicholas Laus	Enabling Offline Scheduling for Scientific Workflows	Jared Coleman
Diego Cuadros	Endangered Language Translation Evaluations	Jared Coleman
Ngoc Kim Ngan Tran	ESMFLUC: A Deep Learning Model for Predicting Protein Sequence-Encoded Flexibility Using Evolutionary Scale Modeling	Zara Alavi, Mandy Korpusik
Natalie Hedding	Examining trophic effects using fluctuating asymmetry: comparing rodents and coyotes	Wendy Binder
Spencer Heaton, Ryan Iglesias	Excited and ground state pKa values of methoxyisoquinolines	Ryan Hunt
Natalie Karapedian, Catherine Hsiao	Excited-State Basicity of Quinoline Photobases in Aprotic Solvents via Forster Cycle Analysis	Ryan Hunt
Ashley Smith	Exploring Connections between Mathematics Assessments and Students' Mathematics Identities	Rachel Tremaine
Cameron Scolari, Uche Obi-iwuagwu, Owen Dewing, Kate Grahame, Cameron Hajaliloo, Raihana Zahra	Exploring Youth Wellness through Social Media: A Cross-Platform Content Analysis	Lanyu Shang, Junyuan Lin
Hayley Katz	Foliar Water Uptake and Leaf Characteristics for Immature versus Mature Angiosperms	Philippa Drennan
Ashley Hurjak, Daniel Gostanian	Healthcare Applications of Nanomotors: Unlocking New Capabilities	Robert Senter, Mustafa Mozael
Raihana Zahra	HealthCheck: An Automated Web Platform for Assessing Women's Health Claims on Social Media	Lanyu Shang

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

Sofia Enriquez, Olivia Schafer	Heavy Metal Bioaccumulation in Marine Mussels following the 2025 Pacific Palisades Wildfires	Maria Christina Vasquez, Rachel Adams
Alexander Provenzano	Hsp70 protein abundance in Mytilus galloprovincialis collected from site-specific locations and across seasons	Maria Christina Vasquez
Amelie Dinh, Milka Y. Zekarias, Jia S. Garcia, Alex J. Miller, Cindy L. Tong	Improved User Interface and Export Functionality for GRNsight 7.4, a Web Application for Visualizing Gene Regulatory and Protein-Protein Interaction Network Models	John David Dionisio, Kam Dahlquist
Isabella Garcia Ascencio	Influence of solvent polarity and hydrogen bonding on the rate of Hünig's base catalyzed acylation	Steve Heller
Zoe Castanon, Afia Acheampong, Max Barnett-Abrams, Angeline Dangca, Amelia Desmarais, Raffi Hovanessian, Andrea Stanciu, Zoe Zidon	Interaction of RGG-motif peptides and Topoisomerase Inhibitors with MYC promoter G-quadruplex	Jeremy McCallum
Gia Rizvi	Investigating Sex-Specific Growth Differences Between Great Black-backed Gull (Larus marinus) Chicks	Kristen Covino
Marian Barcenas Ortega	Investigating the Ability of the MeOQ Photobase to Deprotonate Alcohols that Can React with Selected Solvents	Ryan Hunt
Lila Le	Investigating the Progression of Gastrulation in Trachemys scripta Turtle: Correlation of Changing Blastopore Shapes and Internalized Tissue.	Maxellende Ezin
Manuel Sune, Leyat Hailu	Is race a factor determining cardiovascular reactivity to stress in college students: A pilot study exploring health discrepancies in the university environment	Caio Sousa
Alexandra Whitcomb	Isolation, Cloning, & Characterization of DNF2 homolog in Melilotus alba via Reverse Transcription-Polymerase Chain Reaction and In-situ Hybridization	Nancy Fujishige
Thomas Rife	Knowledge Grapht: AI-Powered Spaced-Repetition Aid and Course Mastery Modeling	Andrew Forney
Sebastian Lange, Quinn Austin	Kubishi Scholar	Jared Coleman

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

Jack Davenport	Locating and Modeling the Hidden Fault in the Paloma Oil Field in Kern County, CA	Robert Welch
Colin Bajo-Smith, Sebastian Lange, Quinn Austin	Mapping Out Wildfires with Semi-Autonomous Drones and Thermal Cameras	Gustavo Vejarano
Marisa Gomez	Measuring Frameshift Efficiency of the SARS-CoV-2 Frameshift Site Using Dual Fluorescence Reporter Proteins	Kathryn Mouzakis
Alexander Gertler	Mind in Motion: A Preliminary Analysis	Jenevieve Roper
Giselle Haddad, Samantha Ortiz-Mclendon, Dyllan Soriano	Motor Cortex Activation in College-Aged Adults Exposed to Alcohol-Related Visual Stimuli	Christopher Cappelli
Jackson Spiecker	An Odorless, Benign Alternative to Thiophenol for the Deprotection of Nosyl-Protected Amines	Stephen Heller
Kathyrn McGinnis	Optimal Germination Temperature of J. Californica and Hybridization with Non-Native Species	Demian Willette
Isabella Yurkanin	Osmotic Performance of Mytilus Trossulus Under Hyposalinity Stress	Christina Vasquez
Jason Chamorro	A Parametric Evaluation of 36 Online Task Scheduling Algorithms	Jared Coleman
Jenson Molebash, Chris Porter	Parking Lot Functions	Joshua Hallam
Natalie Younan, Jadyn Ambachew, Manuel Suñé, Leyat Hailu	Perceived Stress Influences Cardiovascular Reactivity in College Students	Caio Sousa
Hannah Kotek	Pigment content in L. perezii leaves at various stages of development	Philippa Drennan
Sarmad Alani	Potential Effects of Enhanced Serotonin Signaling on Craniofacial Morphometrics	Maxellende Ezin
Giselle Haddad, Samantha Ortiz-Mclendon, Dyllan Soriano	Predictors of Academic Performance in Students Enrolled in Health and Human Sciences Courses	Christpher Cappelli
Alexandra Probst	Pseudomonas koreensis as a Plant Growth Promoting Rhizobacterium	Michelle Lum

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

Nicholas Genovese, Logan Lewis	Quantifying Invertebrate Biodiversity in High-Density Urban Restoration Sites in east Los Angeles	Demian Willette
Angeline Dangca, Zoe Zidon, Izzy Tu	Quantifying Nitrogen Compounds in Aquatic Environments Using Ion Chromatography	Lambert Doezema
Kyle Wright	Restoring and Evaluating the Ecological and Thermal Performance of the Life Science Building's Green Roof	Tatiana Kuzmenko
Tayler Minter, Nicole Darley, Rebeka Shamis	Rise in Native Vegetation & Rare Endemics Following Coastal Dune Restoration in Manhattan Beach, CA	Tom Ford
Nicole Darley	The Role of Coastal Dune Protection in Enhancing Carbon Sequestration in Manhattan Beach, CA	Tom Ford, Nicole Bouvier-Brown
Casey Curtis	Runoff meets Restoration: Quantifying Storm Drain Input of Microplastics into a Restored Eelgrass Habitat	Sarah Bittick
Logan Nguyen, Brooke Rosten, Stephen Cummings	Seagrass Structure as an Indicator of Carbon Sequestration Potential in San Pedro	Sarah Bittick
Connor Schmit, Emilio Plascencia-McCort	Seasonal Stability of Plant–Animal Networks in Restored Dunes	Katherine Eisen
Ryan Moon	Sex-Specific Changes in PBMC Mitochondrial Respiration Following Acute Exercise	Robert Musci
Amelia Palacios, Sofia Deek, Aarna Veera	Skin Elasticity Assessment Device for Hand Reconstructive Surgery	Xiangyi Cheng
Nathaniel Pierre-Louis, Salvador Ruiz, Victoria Hernandez	Smart Gloves	Xiangyi Cheng
Lauren Crumb, Larissa Negom	Sommelier Training of an Artificial Nose as an Educational Tool	Emily Jarvis
Isabella Pezo	Spatial and Temporal Regulation of pilA Gene Expression During Rhizobium–Legume Symbiosis	Nancy Fujishige
Yayra Gbagbo, Jaida Andrews	Statistical Evaluation for California Reducing Disparities Project	Ben Fitzpatrick
Matias Martinez	Strategic Task Duplication: Balancing Communication Overhead in Distributed Computing Networks	Jared Coleman
Lauren Campbell	Synthergy: Social Deduction and Deception in LLM-Powered Agents	Andrew Forney
Madrid Ghanavat	Toward the total Synthesis of Psychrophilin F	Steve Heller

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

Sophia Gonzalez	Towards the Synthesis of Albicidin	Steve Heller
Leilani Field-Ridley	Traffic Stops and Policing Profits: Analyzing the Connection within Florida	Robin Wilson
Nil Bertran Garcia	Understanding the hidden faults surrounding the 5.2 Magnitude Earthquake in San Emidio	Robert Welch
Neftali Rocha-Martin	Understanding the role of the HTLV-1 gag-pro frameshift site stem-loop thermodynamic stability in programmed –1 ribosomal frameshifting	Kathryn Mouzakis
Fabiola Bejarano, Mona Hassan, Nicole Wedel, Cameron Whitt, Elisa Milkie, Marco Rocha	Unlocking the Potential of Citrulline Malate	Jenevieve Roper
Lauren Fabre	Urban restoration, establishment, and management of micro-grassland in Ascot Hills Park	Demian Willette
Ryan Adams, Jacob Lopez	Variability in Developing Elevation Contour Diagrams	Michael Manoogian
Malee Bedolla	Visualizing the Colonization Pathways of Non-rhizobial Plant Growth Promoting Bacillus simplex in Root Nodules	Nancy Fujishige
Jeffrey Lee	Whole Genome Analysis and Characterization of Pseudomonas sp. A09CAGT08 – a PGPR Isolated from California Poppy	Michelle Lum

SOCIAL SCIENCE		
Presenters	Title	Advisors
Lily Wong	1994 FDA Hearing on Oral Acyclovir	Mairead Sullivan
Garrett Howard-Jimenez	Angelenos' Feelings of Disenfranchisement and Lack of Trust	Brianne Gilbert
Tanvi Kalakuntla, Parineeta Aggarwal	Click, Pay, Forget: The Psychological Impact of Frictionless Payment Systems	Jin Xu
Kathryn Duff	The Correlation Between Time Spent with Friends and Life Satisfaction in Older Adults: A Mini Meta-Analysis	Nora Murphy

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

Zayad Hyder	Cultural Differences in Competitive Mindsets: Comparing How Athletes from Different Cultural Backgrounds Approach Competition, Teamwork, and Motivation	Alberto Luis Fernandez
Ryan Anderson, Colson Lee, Dee Gbagbo, Vittoria Spagnoletto, Mason Vance	Developing and Refining Age-Appropriate Measures of Intersectional Intergroup Attitudes Among Elementary School Children	Negin Ghavami
Juliana Roman	Displacement Without Leaving: Long-Term Renters in Inglewood	Juan Mah y Busch, Claudio Rodriguez
Tiia Lachance, Samantha Kelley	Does Satisfaction of Received Social Support Relate to Supporter Behavior and Emotion Regulation Strategies?	Nora Murphy
Carolina Hernandez	The Dual Nature of Familismo in the Latinx Family System	Juan Mah y Busch
Landon Dysart	The Economic Implications of the Trump Presidency: A Macroeconomic Perspective on Presidential Actions	Jennifer Pate
Zoe McMullen, Jeffrey Go, Olivia de la Fuente, William Gordon	Effects of Acute Aerobic Exercise on Lipreading	Kayoko Okada
Sophia Chavez	The Effects of Yoga on Multisensory Perception	Chela Willey
Asha Manthena, Corynn Broadwater, Katelyn Stouffer, Rodrigo Bos, Marissa Momary	Examining Potential Correlations Between Identity as a Student of Color & Depression	David Hardy
Vincent Chacon	Fear of Heights, Eye Gaze, and Vertical Estimation Bias in VR.	Chela Willey
Katelyn Stouffer	Greater Subjective Workload During Executive Functioning Tasks is Associated with Elevated ADHD Symptoms	David Hardy
Isabella Castro	Higher Fatalism Predicts Suspicion of but not Willingness to Participate in Clinical Trials among U.S. Adults Diagnosed with Cancer	Timothy Williamson

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

John Kassabian	Mapping Soil Contaminants from the 2025 Los Angeles Fires: A Spatial Analysis of Post-Fire Contaminants in the Palisades and Eaton Burn Zones from the Community Action Project's (CAP.LA) Test Results.	Brianne Gilbert
Brandon Dona-Velazquez	Medical Trust, Financial Concerns, and Preference for an At-Home Cervical Cancer Screening Test among Hispanic/Latina women aged 21-65 in the U.S.	Timothy Williamson
Zayad Hyder	Neural Signatures of Executive Function: An EEG Study in Healthy College Students	Michael Foy, Judith Foy
Alexis Nagler, Sarah Gutknecht, Nicole Won, Lucy Westhusing, Arwen Miranda	Neuropsychological Performance Across Domestic and International University Students: The Role of Language Dominance	Alberto Fernandez
Ethan Carter	Recruitment as Contradiction: Deterrence from Blackness & Failed Proximity into Whiteness	Juan Mah y Busch, Oscar Gutierrez
Maricia Marquez	Reviving Trust through Participation: How Student-Led Polling Engages Young Researchers and Reaches Registered but Unlikely Voters	Brianne Gilbert
Joshua Dasilva	Sex Differences in the Association Between Health-Related Functioning and Short-Term Relapse During Early Sobriety	Joseph LaBrie
Raul Rivera III	Social Media Engagement and Willingness to Engage in Telehealth Services among Depressed Young Men with Limited Healthcare Utilization	Timothy Williamson
Erin Roy, Serena Louie	Traditionalism, Protectionism, and Political Mobilization on X: A Content Analysis of Potential Patterns across Authoritarian Regimes	Chaya Crowder
Yasmin Kim	Understanding the Experiences of LMU Honors Students	Negin Ghavami

Abstracts

1994 FDA Hearing on Oral Acyclovir
Lily Wong

This study analyzes the 1994 FDA Hearing documents from the federal court hearing on the proposed switch of oral Acyclovir, the primary drug used in the treatment of the herpes simplex virus (HSV), from prescription-only to over the counter (OTC) status. The 1994 FDA Hearing documents are imperative to understanding the cultural attitudes, concerns, and thoughts surrounding herpes and STDs in general in the 1980s. The very existence of this hearing reveals the complex relationship between the physicians, patients, and pharmaceutical companies, especially when considering contentious topics such as sexual health. Digital archives, primarily those by the Food and Drug Administration, were accessed to analyze a corpus of 48 documents related to the 1994 federal court hearing on the availability of oral Acyclovir. The corpus was analyzed utilizing computational analysis in Jupyter Notebook to understand the texts more deeply. These methods included word-frequency analysis, bigram networks, adjective analysis, and co-occurrence networks generated through Python-based coding in Jupyter Notebooks. Results indicate that patient education and advocacy were dominant themes across the corpus, frequently appearing in proximity to discussions of misdiagnosis, antiviral resistance, and potential increases in sexually transmitted disease (STD) transmission should Acyclovir become available OTC. The 1994 FDA documents are essential for examining the history of HSV, especially through a cultural lens, as it engages with the continuously contested topic of whether medications such as Acyclovir should have over-the-counter status.

The 2024 Election and the Crisis of Gendered Political Ambition
Makenzie Ganje

Over the past decade, two women lost presidential elections to the same opponent. While existing scholarship shows that women are less likely than men to pursue office due to structural and psychological obstacles, we know far less about how women interpret the losses of prominent female candidates. This gap raises a critical question: how do high-profile defeats shape women's political participation, and does this effect vary across demographics? This project shifts attention from victories to setbacks. I argue that exposure to Kamala Harris's 2024 loss will decrease women's political engagement, but pairing her defeat with salient gendered policy threats will instead mobilize participation. I conducted a survey experiment with 600 participants, randomly assigning them to read 2024 election headlines that depicted either Kamala Harris' loss, her loss accompanied by a threat, or a neutral control scenario. Respondents will answer pre- and post-treatment questions measuring political attitudes and future engagement. I expect that defeat alone discourages ambition, while defeat under threat motivates women to act.

Accelerometer-Based Activity Recognition to Support Calorie-Free Feedback in an Intuitive Eating Mobile Platform
Nathan Yasnovsky, Joseph Nash

Calorie-centric tracking remains dominant in commercial wellness systems, despite evidence that numeric monitoring can conflict with recovery-oriented and intuitive-eating approaches. To support calorie-free, psychologically safe movement feedback, we develop a lightweight deep learning pipeline for activity recognition using wrist-mounted accelerometer data. Our method trains a temporal convolutional network (TCN) to classify walking, jogging, and stair-related activities (stair ascent and descent) from windowed raw accelerometer signals. We evaluate model generalizability using leave-one-subject-out (LOSO) validation and report both person-level and per-class performance across daily-living activity classes. This activity recognition module is intended to serve as the sensing foundation for a companion system that estimates energy-expenditure intensity qualitatively, without calorie conversion, as part of a mobile intuitive-eating application. By combining efficient wearable sensing with deep time-series modeling, this work contributes a technically rigorous and human-centered approach to health informatics, enabling movement-aware feedback that supports well-being without reinforcing calorie-focused behaviors.

Accelerometer-Based MET Estimation for Wearable Energy Expenditure Monitoring
Adam Neulander, Dayyan Chaudhri

Accurately estimating energy expenditure (EE) from wearable devices remains challenging without heart rate sensing or indirect calorimetry. This work investigates a lightweight, accelerometer-based framework for estimating metabolic equivalent (MET) intensity levels using only wrist- and hip-mounted triaxial accelerometers. We extract ENMO-derived features and apply published nonlinear mappings to estimate MET values without user calibration, multi-sensor fusion, or physiological measurements. To assess the plausibility of these estimates in the absence of calorimetric ground truth, we introduce an indirect validation strategy based on three criteria: (1) consistency with benchmark MET tables, (2) cross-subject stability, and (3) correct intensity ordering across walking, jogging, and stair-related activities. Results show that accelerometer-only MET estimation captures expected physiological patterns and separates activity types in a realistic and interpretable manner. These findings highlight the potential of ENMO-based methods for real-time wearable EE monitoring, particularly in applications where relative intensity tracking is more important than precise caloric accuracy.

Accuracy of Parameter Estimation for a Simple Gene Regulatory Network Model is Sensitive to Network Motif, Number of Parameters Estimated, and 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 gene expression 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, which fall into 11 families of network motifs such as "feed-forward loops", "mutual-in", and "fan-in" among others. Parameters were estimated from simulated expression data output when known arbitrary weight parameters (1, 2, -1, -2) underwent a forward simulation. 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 arbitrary weight parameters assigned to networks with the same connectivity. To better understand the influence of the weight parameters, we generated all twenty-four possible weight permutations for each network motif. By evaluating the permuted network model results, we can better understand why certain network motifs are more prevalent in natural GRNs.

After Ashcroft: Prosecuting Artificially Generated Child Sexual Abuse Material in the AI Age
Nora Smith

Amidst the rapid growth of the use of artificial intelligence to generate unique content, these technologies have been used for the creation of photorealistic child sexual abuse material. This development has made CSAM

production increasingly accessible, affordable, and discreet. Prosecutors and the courts have found themselves lacking in precedent on this novel issue, and lawmakers have moved toward implementing specific policies targeting this type of content. In this paper, I argue that the current precedent set in Ashcroft v. The Free Speech Coalition, in which the Supreme Court ruled that "virtual child pornography" is protected speech, is no longer an appropriate framework, given the evolving nature of AI-generated CSAM. I argue against the notion that AI-generated CSAM does not harm real children through the bolstering of the commercial market for CSAM, and address common counterarguments, including the belief that it is not possible to create policies that explicitly address AI-generated CSAM while also surviving First Amendment challenges.

All-American Superhero

Carter Paige, Christian Cabero

Drawing on intersectionality (e.g., Ghavami & Peplau, 2013), social identity theory (Tajfel & Turner, 1986), and the Ecological Systems perspective (Bronfenbrenner et al., 1989), we developed a diversity module to provide 2nd- and 3rd-grade students an opportunity to learn about their family and cultural identity in a developmentally relevant manner. This five-week module, entitled "My All-American Superhero," was systematically designed to connect existing research on culture, identity, and family (e.g., Umana-Taylor., 2020) with students' own family and cultural experiences. This module has two interconnected goals of exploring and expressing one's own culture while also fostering an understanding of others' cultural identity. The module will be folded into students' class curriculum over five weeks. Each week focuses on different aspects of the superhero and the students' cultural identity. Week one is where the students conduct interviews with their family members to give background to their superhero while learning the Latin phrase "E Pluribus Unum". Week two consists of the creation of superpowers, which are supposed to be their ethnic group's contributions to America, while their utility belt consists of tools that represent what their family has contributed to America's culture. Week three is designing the cape of the superhero, which is often the family's flag of their country of origin, but it could also be three symbols that are significant to their family. Week four is focused on the supersuit, where the goal is to design a suit that is inspired by the family's traditional attire. Week five is "show and tell" with the rest of the class, where students share their superhero and have to work together to solve problems posed by the teacher using their superpowers and tools together. The final week is also when the phrase "E Pluribus Unum" will be described and shown that their superheroes together create one cohesive group that works together. This module has the potential to provide a framework for educators to cultivate both individual ethnic pride and collective appreciation for diversity.

Analog Convection of Icy Ocean Worlds

Kate Murphy

Icy moons in the outer Solar System show strong evidence for subsurface oceans beneath thick ice shells, making them compelling targets in the search for life beyond Earth. Understanding how heat is transported within these oceans is essential for assessing how nutrients may move from the ocean floor to surface cracks, potentially supporting the conditions necessary for life. In this work, we evaluate buoyancy-driven thermal convection as a

means for heat transport in subsurface ocean environments. Because direct observation of these systems is not possible, a laboratory analog is used to simulate key physical conditions relevant to icy-moon oceans. The experimental setup enables precise thermal measurements over time as well as velocity measurements of fluid motion. Our results provide insight into the role of convection as a mechanism for nutrient transport under conditions relevant to subsurface oceans. This work establishes a foundation for future extensions of the experiment to include additional factors, such as salinity and rotation, to better approximate subsurface ocean conditions on icy moons.

Analysis of LexA Expression in the Brain Using L-TRACE, a New Cell Lineage Tracing Tool for Drosophila Development

Scott Wilson

LexA is a bacterial transcriptional activator protein that has been co-opted for use in transgenic Drosophila. Random insertion of the LexA gene into the Drosophila genome can place LexA under the control of local endogenous gene regulatory elements. Such lines are called “enhancer traps” in which LexA acts as a transcriptional reporter for nearby Drosophila genes. Thousands of LexA-expressing lines exist in the fly research community, including a collection of several new lines at LMU. To assess LexA expression in these lines, we have developed the LexA Technique for Real-time and Clonal Expression (L-TRACE), a new genetic tool to evaluate LexA expression patterns. The L-TRACE system uses Red Fluorescent Protein (RFP) to reveal active LexA expression (activity) in cells at the moment of dissection while Green Fluorescent Protein (GFP) reveals cells (or their descendants) that previously expressed LexA. For the purpose of demonstrating how the L-TRACE system works, we have chosen to examine LexA::L-TRACE patterns in the larval brain owing to its high level of cell lineage complexity. The L-TRACE system can help developmental biologists understand how progenitor cells relate to descendant cells and may help establish connections between cell identity and endogenous gene expression, among other anticipated uses. Because LexA lines are widely available and continue to grow in number, it is likely that L-TRACE will be a valuable resource for the Drosophila research community.

Analyzing the Dynamics of Environmental Policy Quantity in the U.S.

Kanna Parker

Environmental policies in the United States do not operate in isolation; they cite, amend, extend, and sometimes revoke one another, forming an interconnected network that evolves across administrations. Yet existing research typically evaluates policies individually, missing how the connections between policies effect long-term stability. This study develops a novel quantitative framework to test whether U.S. environmental policy follows a "snowball" trajectory by analyzing 158 policies across five administrations of varying environmental commitment (Clinton-Gore through Biden-Harris), constructing a signed relationship matrix capturing inter-policy connections, and quantifying each policy's scope across multiple weighted dimensions. Three findings support the snowball hypothesis: reinforcing relationships substantially outweigh dismantling ones, the network amplifies cumulative impact well beyond what isolated policies achieve alone, and policy inheritance increases over time as later policies benefit disproportionately from accumulated precedent. Notably, this accumulation pattern persisted

even through administrations explicitly committed to deregulation, suggesting structural resilience against political reversal. These results offer scholars and policymakers a tool for understanding how current decisions shape future regulatory capacity.

Angelenos' Feelings of Disenfranchisement and Lack of Trust
Garrett Howard-Jimenez

With voter turnout becoming increasingly important as the political divide in the U.S. grows, there is still a large population in Los Angeles County of voters that are registered yet have not casted a ballot in the past four years. This study examines the factors contributing to registered but unlikely voters' reluctance to participate in elections by analyzing patterns of disenfranchisement and levels of trust in major institutions. It draws on data from the 2024 Registered but Unlikely Voter survey conducted by the Center for the Study of Los Angeles at Loyola Marymount University. Responses from 434 Los Angeles County residents were collected by phone and email/online between October 10, 2024, and November 4, 2024, with a margin of error of ±5% for the overall sample. Despite 79% of respondents reporting that voting is easy, only 45% believe their vote truly matters and view this perception as influencing their likelihood to vote. Additionally, just 29% of respondents trust local and federal governments to do what is right. Among political parties, 32% believe the Democratic Party will do the right thing, while 23% believe the same of the Republican Party. These findings indicate that a lack of trust in major institutions and a sense of disenfranchisement are key factors contributing to individuals' reluctance to vote. To address low voter turnout and engage the registered but unlikely voter community, it is essential for government entities and political parties to rebuild public trust in both them and the democratic process.

Anyone Can Pick Up a Microphone, But Can They Flip the Election? An Analysis of Podcasts in Terms of the 2024 Presidential Election
Lily Pellillo

What was the driving force behind the 2024 U.S. Presidential Election? While this question will be debated for years, I argue that podcasts played a significant role in shaping how voters viewed the candidates. Podcasts have become one of the most popular and accessible forms of media, with millions of listeners tuning in weekly. Studies have shown that as trust in mainstream media declines, more people are turning to podcasts for news and opinions. However, there is little research on how these podcasts actually influence political attitudes. My paper asks: How did listening to podcasts influence voters' favorability of the presidential candidates for the 2024 election? Through a quantitative survey, I will explore how parasocial relationships, where listeners form one-sided bonds with podcasters, shape political opinions and engagement. I expect to find that regular podcast listeners are more likely to trust their podcasters' political beliefs and to be more politically active. These findings expect that podcasts are becoming a powerful tool in shaping how Americans think about politics and elections.

Applications of 8-Methanolquinoline as a Photo-Base to Deprotonate Weak Acids
Damian Barrios

The deprotonation of weak acids is an important step in many synthetic chemistry applications. It also tends to be a wasteful step, utilizing strong and sometimes unsafe strong base reagents. Using photobases, molecules which become much stronger bases when hit with UV light, may allow for safer, greener, and more controllable base-catalyzed synthetic reactions. In this work, we investigate the photobasic properties of the molecule 8-methanol quinoline using UV-Vis spectroscopy, fluorescence spectroscopy, time-correlated single photon counting (TCSPC), and computational chemistry. Preliminary spectroscopic results suggest that this molecule can deprotonate isopropanol, a weakly basic alcohol, after it is hit with UV light. This would make 8-methanol quinoline the strongest N-heterocycle photobase reported so far. We hypothesize that this anomalously high basicity is explained by the unique hydrogen-bond donating "arm" of the molecule. We hope that the unique properties of this molecule will make it a useful tool for future photosynthetic chemists.

Art Therapy: Effective Non-Medication Therapy Treatment Strategies for ADHD and Dyslexic Individuals
Lyla Bollag

Art therapy is an effective non-medicated way to treat ADHD and is another alternative to help people with dyslexia strengthen their particular struggle areas. The methods for gathering data were conducting semi-structured qualitative interviews with four participants, all of whom have had clinical work experience for two years or more. In the data, for the client to have both a successful and effective session, there were three necessary elements: a therapeutic inducing environment, a certain level of sensory engagement, and grounding in the client's bodily awareness. One proved special: grounding, which is a result of the environment and sensory engagement. The session will not be effective for the client if grounding is absent. Art therapy is unique as it mainly revolves around the client instead of the treatment itself. To conclude, art therapy is not intended to fix its clients, as they were never broken to begin with; art therapy merely opens a way for independence and self-acceptance. The implications of the data in this research topic expand beyond these two groups. Knowing what needs to be present in art therapy for it to work for both ADHD and Dyslexia could benefit people with other forms of neurodivergence by offering more resources.

The Arthouse Blockbuster: Political Aesthetics in Hollywood Cinema
Olin Burke

Post World War II, arthouse cinema became synonymous with political messaging through its aesthetics and divergence from what would become "Hollywood" cinema and its conventions focusing on accumulating capital as an industry. These films operated outside of the main studios which crafted their films to appeal to mainstream audiences. Beginning in the 1990s, production studio Miramax helped provoke Hollywood's interest in independent cinema aesthetics. This led to a creation of independent subsects of major studios that would dominate the box office, festivals, and award ceremonies for years. After the deterioration of these subsects in the late 2000s, A24 emerged in the following decade as a new independent studio that harkened to aspects of

avant-garde films and delivered cerebral or politicized themes. As an interest in these films made for niche communities grew to a larger audience, so did Hollywood's. Soon, major studios began adopting the conventions of arthouse cinema in hopes to appeal to audience interest and covertly hide the true intentions of the films made within the movie industry. However, these films are made by institutions that look to keep the viewer sedated in the ideologies it promotes, therefore depoliticising the aesthetics and neutering the intellectual provocation historically intended by arthouse films. A critical inquiry into this understanding uncovers how the presence of Bugonia (Lanthimos, 2025), One Battle After Another (Anderson, 2025), and Marty Supreme (Safdie, 2025) at the 2026 Oscars displays how Hollywood appropriates the political aesthetics of arthouse cinema for mass market capital rather than revolutionary purposes.

Artsmart Mentorship Program

Kemi Agbalaya

The Artsmart program provides undergraduate students from diverse backgrounds and academic disciplines with the opportunity to mentor and develop art-based curriculum for elementary-aged children through a partnership with the Westside Global Awareness Magnet School. Artsmart allows LMU students to engage in leadership development by collaborating with peers to build and teach art-based lessons that focus on social emotional learning and social justice. I have been an artist mentor since the fall of 2024, and I have been impacted by the imagination and creativity that children possess. Being able to see life through their lens has helped me broaden my own perspective spiritually and creatively. I have seen firsthand how art empowers children to express themselves in new ways by fostering an environment where their "mistakes" make artistic masterpieces. Many of the children in the Artsmart program come from communities where college can feel out of reach and pursuing a career in art is often discouraged or viewed as unrealistic. However, through LMU students sharing about their university experience and the artistic spaces we create as mentors I have seen children discover new ways to express themselves and begin to view college as a possibility and art as more than a hobby but as a future career.

Assembly of Microcontroller for InterOrbital 3.0 CubeSat Kit

Rae Sheng

While large-scale satellites require substantial time and resources, developments in modular satellite platforms have expanded opportunities for young researchers to participate in space systems engineering at a much lower price. However, the possibility of hands-on space research through spacecraft can feel as far as the stars themselves due to mission availability, complexity, and duration. Contributing to ever-growing opportunities for orbital access, this research project involves the independent assembly, testing, and documentation of the highly affordable, professional-grade Interorbital Systems CubeSat 3.0 satellite kit. The kit contains controller, spacer, electrical power system, transceiver, and antenna boards. The primary objective is to develop a diagnostic health status check to identify and resolve operational issues in programming the CubeSat via an Arduino Uno board in preparation for the CubeSat Launch Initiative by NASA. While in orbit, this particular CubeSat will detect and log the location of jamming attacks, or malicious disruptions of wireless communication. One illustrated technical

manual explaining the basics of jamming attacks through computer data visualization has been completed; a manual introducing students to lab and equipment safety practices, Serial Peripheral Interface (SPI) communication, Integrated Development Environment (IDE) configuration, and programming the CubeSat's components is in progress. By engaging directly with the platform's hardware, software, and subsystems, this project provides a positive educational impact on the LMU CubeSat Laboratory in the Department of Electrical and Computer Engineering and Cube Satellite Club, a registered student organization at LMU, and contributes to the broader goal of educational access to space engineering.

The Association Between Health Literacy and Receiving Coordinated Medical Care Among Hispanic and Latino/a U.S Adults with Chronic Disease

Areika Novella

In the U.S., Hispanic and Latino/a (H/L) adults experience disproportionate burdens of chronic health conditions such as diabetes and hypertension. They also encounter persistent disparities in health literacy and care quality, often due to structural barriers including limited English proficiency, inadequate access to culturally competent care, and systemic inequities in healthcare delivery. Effective chronic disease management frequently requires navigating care from multiple providers and settings, making medical care coordination a critical determinant of outcomes. Individuals with lower health literacy may face greater challenges in communicating across providers and understanding treatment plans, which could exacerbate gaps in coordinated care. Yet, few studies have examined how health literacy relates to care coordination among H/L adults. Purpose: Among H/L adults with one or more chronic diseases (n=474; weighted n=11,653,948), we tested the pre-registered hypothesis that higher health literacy would be associated with greater coordination of medical care. Method: We analyzed data from the 2024 Health Information National Trends Survey (HINTS 7) by conducting a multivariable linear regression, with health literacy ("how confident are you filling out medical forms by yourself?; 1-4 scale) predicting medical care coordination ("how often did you get the help you needed from your primary care provider's office to manage your care among different providers and services?"; 1-4 scale), controlling for age, sex, and insurance coverage. Results: Health literacy was not significantly associated with medical care coordination (b=0.09, p=.400, 95% CI [-0.13, 0.31]). Of the covariates, female (vs. male) sex and age groups 35-49 and 65-74 (vs. 18-24) were associated with greater medical care coordination (all $p<.05$). Conclusions: Contrary to our hypothesis, health literacy was not significantly associated with medical care coordination among H/L adults with chronic disease. These findings suggest that structural barriers, such as language access, provider bias, and limited availability of culturally tailored care, may exert a stronger influence on coordination than individual-level health literacy skills. Future research should examine how culturally competent communication, interpreter services, health system navigation support, and team-based care models can strengthen care coordination for H/L adults managing chronic disease.

The Authenticity Economy: Mexican Food, Cultural Commodification, and Gentrification at Cafe Tondo
Karina Sanchez

My project looks at how Mexican food and drink are commodified in gentrifying LA neighborhoods. My research question, "What happens to the 'authenticity' of Mexican culture when it is repackaged and marketed as a premium?" comes from observing the trend of aestheticized Latinx culture in neighborhoods like Silver Lake and Echo Park, where new establishments feature menu items like "CDMX-inspired cocktails" that cater to wealthy, predominantly white consumers. While these trends increase visibility for Mexican culture, they also raise questions about who profits from cultural commodification and at what cost to the communities. This project contributes to ethnic studies and food studies by examining how social media and digital marketing enable new forms of cultural commodification, filling a gap in existing literature. Using discourse analysis, visual analysis, and field observation, I conducted a case study of Cafe Tondo, an Instagram-famous bar. I examined their Instagram, menu language, and media coverage to see how the concept of "authenticity" is constructed and marketed. I also researched the history of food and gentrification in LA and plan to speak with community members to understand local perspectives on these changes. My research will reveal how Mexican culture transforms from an accessible community tradition into an exclusive luxury product and what that means for cultural appropriation, economic displacement, and community preservation in gentrifying cities like LA. I think it is especially relevant as we see how non-Latinx consumers support Latinx culture in one way, while ignoring harm to the Latinx community in other ways.

The Battle Between Latine Self-Esteem and the School-to-Prison Pipeline
Isabella Andrade

Throughout the United States, educational institutions and schools are often the first places students are exposed to racial criminalization and discrimination. This can come in the form of zero-tolerance policies that withdrawal equal educational resources. This deprivation of educational resources and verbal criminalization of Black and Latine students can impact their self-esteem and prevent these communities from climbing the social and economic ladder while simultaneously exposing these students the concept that they are incapable to reaching these goals because of their race or ethnicity. This research paper aims to explore how these policies paved the way for the school-to-prison pipeline to emerge and their effect on Black and Latine students' self-esteem using public data records, such as the Civil Rights Data Collection's national records of disciplinary actions each school year, as well as qualitative and quantitative research done by ethnic studies and educational scholars. Zero tolerance policies and exclusionary discipline practices have fueled the school to prison pipeline as well as the reduced self-esteem levels of Black and Latine students in comparison to their white counterparts.

The Belly of the Boom Years: A Qualitative Study of the Winners & Losers, Success & Failure, and Impetus Behind Urban Megaprojects in Ethiopia

Aida Yezalaleul

This thesis examines the political economy of urban megaprojects in Ethiopia under Prime Minister Abiy Ahmed, situating contemporary urban renovation within a longer history of authoritarian governance. Existing literature suggests that megaprojects are often used by authoritarian and hybrid regimes to signal modernization, attract global capital, and legitimize political authority. However, less is known about how these dynamics operate in Sub-Saharan Africa, particularly in Ethiopia's pseudo-democratic context, or how financing choices intersect with authoritarian governance and urban inequality. This study asks why Ethiopia has intensified its pursuit of large-scale urban megaprojects; who are the winners and losers; and what defines success and failure in these projects. It argues that centralized authoritarian governance enables rapid project implementation and accelerated paths to political economic growth that reinforce authoritarian neoliberal development while obscuring social costs. Using qualitative document analysis of the Beautifying Sheger initiative and the Addis Ababa City Corridor Project and interviews with scholars who have professional expertise in Ethiopian urban development, I hope to shine light on future prospective renovation planning in Ethiopia and Africa by highlighting displacement risks, governance challenges, and trade-offs between boom and the body politic.

Beneath the Miracle: Public Attitudes Toward South Korean Chaebols

Diego Luis

South Korea's in/famous Chaebols (family-owned conglomerates) emerged in the 1960s. Fueled by preferential loans, convenient access to capital, and cheap labor, these companies powered South Korea's famous "Miracle on the Han." However, in recent years, the Chaebol image has deteriorated significantly, owing to their immense power, various corruption scandals, and worsening income/asset inequality. Existing literature regarding Chaebols broadly examines their history and interdependence with the wider South Korean economy (Park, 2012; Minns, 2001). What is less defined, however, is how individual Koreans perceive Chaebols, and if/how this manifests itself politically. I will survey approximately 150 Korean citizens, questioning them about their sentiments towards major chaebols, economic opportunities, and support for political candidates/movements. I anticipate a growing resentment towards dominant Chaebols, which in turn facilitates the emergence of populist and anti-establishment figures promising significant reforms. I also hypothesize that negative attitudes toward Chaebols contribute to lower levels of trust in government institutions and political leaders. This research would ideally become an important part of the future literature on Korean anti-establishment candidates and leaders.

Beyond Skrmetti: A Constitutional Case for Gender-Affirming Care

Mateo-Luis Planas

In 2025, roughly 2.1 million adults in America identify as transgender, making up roughly 1% of the country's total population. Despite this, the transgender identity has become a focus of political debates and made its way onto the U.S. Supreme Court's docket in U.S. v. Skrmetti. The issue is not whether transgender people exist, but

rather, how they ought to exist legally: if and when one can access medical care to pursue a gender transition. While many American doctors agree that these treatments are lifesaving, since 2021, a slew of legislation has limited access for adults 18-21 (AMA, 2021). This thesis will examine the constitutionality of Puerto Rico Law 63, Tennessee SB-1, and Nebraska LB-574. All laws must comply with the protections extended by the U.S. Constitution, yet each aforementioned law sets a different age threshold for adults seeking gender-affirming care. This thesis will argue that laws that restrict or ban access to care for adults ages 18-21 violate their rights to Due Process. Further, this paper will offer a different avenue for how the Constitution might be used to protect the right to transition.

Beyond Spectacle: Camp and Comedy as Resistance in U.S. Latinx Film & TV
Victoria Valenzuela

This research examines how camp and comedy function as strategies of resistance in Latinx representation in American film and television. As Hollywood faces increasing pressure to address the historic whitewashing and stereotyping of Latinx characters, questions of representation have become increasingly urgent. Despite Latinx people making up nearly 20% of the U.S. population, Latinx characters have long been reduced to harmful stereotypes. This project asks: How does camp challenge these limiting narratives? In what ways does comedic excess allow Latinx characters to reclaim agency, complexity, and cultural nuance? Drawing on queer theory, gender studies, and Latinx media studies, I argue that the satirical excess of U.S. Latinx camp operates as a strategy of resistance through misidentification, disrupting the racist gaze that has historically shaped mainstream representations. Rather than treating camp as a solely European or apolitical, this research traces a genealogy of camp rooted in Latin American media traditions. Through this transnational framework, the project demonstrates how satire, melodrama, and exaggeration shape U.S. Latinx camp. Through close analysis of selected Latinx film and television case studies, I show how camp not only subverts stereotypes but also critiques the cultural systems that produce them. This research contributes to conversations in media, cultural, and queer studies by extending camp scholarship beyond traditional frameworks of realism and respectability. By centering Latinx camp as a minoritized and transnational practice, the project positions camp as a critical mode of storytelling that resists assimilation and opens space for complexity, humor, and cultural self-definition.

Beyond the “Final System”: Schelling's Development on Kant's Philosophical History
Yujie Wang

Kant and Schelling both reject the idea that the history of philosophy is just a random collection of wrong opinions. For both thinkers, philosophy develops in a necessary, structured way. But they disagree sharply on where this development is headed. For Kant, the history of philosophy is driven by reason itself. Reason has its own inner dynamic—it constantly pushes beyond experience, falls into conflict, and is forced to reflect on its own limits. History doesn't stop with Kant, but with him, philosophy becomes self-aware for the first time. Earlier systems were unconscious attempts; Kant's critique is the moment reason turns back on itself and understands its own nature. From this point, philosophy can finally proceed on a secure path. Schelling agrees that philosophical systems follow a necessary order. But for him, there is no privileged turning point—not even

critique. The "absolute subject" or "eternal freedom" that moves through all systems cannot be fixed in any single form. It must pass through every possible position (materialism, idealism, etc.) but remain in none. History is not a staircase leading to a moment of clarity; it is the endless movement of freedom itself, constantly taking on new forms and breaking out of them. Kant's critique is just one more form—necessary, but not final.

Bilingualism and Its Effect on Cognitive Performance Using the Multicultural Neuropsychological Scale

Nicole Won, Manvi Singh, Matthew Barbee, Sophia Vukadinovich

The research around the cognitive effects of bilingualism varies. While Ljungberg et al. found a greater performance in verbal episode recall in bilinguals, Paap et al. found studies like Ljungberg's cannot be replicated with the same results. The purpose of this study is to research whether bilingualism affects the performance on the Multicultural Neuropsychological Scale (MUNS). Participants/Methods: The MUNS is a 45-minute neuropsychological scale that measures memory, attention, executive functioning, constructional praxis, and language. Forty-two undergraduate students from Loyola Marymount University between the ages of 18 and 23 (M = 20.24, SD = 1.39), comprising 30 females and 12 males, with 12-15 years of schooling (M = 13.39, SD = 1.17), participated in the study. There were no significant differences between the two groups in terms of age (p = 0.18), years of schooling (p = 0.84), and reading fluency score (p = 0.48). Each participant completed the Language Experience and Proficiency (LEAP) Questionnaire and MUNS in English for one hour. The LEAP is a two-part questionnaire used to determine if a person is considered bilingual or monolingual. To be considered bilingual, participants must have a score greater than 6 on the LEAP for at least 2 languages. Out of the forty-two participants, 17 were bilingual. For fifteen of the bilingual participants, English was their first language. Results: There was no significant difference in most cognitive performance tasks between bilingual and monolingual students, including reading fluency [p = 0.475], personage (delayed verbal memory) [p = 0.48], visual memory [p = 0.18], immediate word list recall [p = 0.34], delayed word list recall [p = 0.70], attention [p = 0.44], executive functioning [p = 0.40], constructional praxis [p = 0.42], and language [p = 0.67]. However, bilinguals had higher scores on the memory discrimination index (M = 12.76, SD = 1.03) than monolinguals (M = 11.2, SD = 1.87) when completing the MUNS [F (1,40) = 9.81, p = 0.00]. Conclusion: In this study bilingualism did not affect the performance of the participants on most of the MUNS subtests including, memory, attention, executive functioning, constructional praxis, and language. One possible reason for the lack of significant differences is that the MUNS might not be sensitive enough to capture the differences in cognitive performance between these groups. In addition, there might be some bias effect as a consequence of the small sample size. Moreover, this study's population consisted of highly educated individuals, which only represents a small group of people in the world, therefore these results cannot be generalized to a general population. Furthermore, most bilinguals' first language in this study was English. Since the test was administered in most participant's preferred language, these results might not be comparable to other studies in which the characteristics of bilinguals might be different.

Bioremediation of Chromium 6 with Bacillus Safensis Malate Dehydrogenase

Ryan Khosravi, Alice de Sa Costa Pereira, Korina Apostol, Liam Moore

High levels of the heavy metal chromium are incompatible with most life. However, certain microbes, including Bacillus safensis (B. safensis), have biochemical pathways that allow them to combat oxidative stress, generate ATP, produce glucose, and reduce metals such as chromium, giving them bioremediation potential. The core metabolic enzyme malate dehydrogenase (MDH) is thought to play a role in this process and by comparing Bacillus safensis to the related model organism B. subtilis, we aim to enhance our understanding of microbes to create a safer environment. Although B. safensis is not heavily researched, B. subtilis is well studied and its MDH protein is almost identical to B. Saf in sequence (94% identical). This makes B. subtilis MDH a strong comparison for B. safensis MDH to understand the differences in activity, function, and structure of enzymes in the understudied LDH-like class. Enzymatic activity assays revealed slight pH-dependent kinetic differences between them and to further investigate this discrepancy, we are looking at structural differences. Our differential scanning fluorometry (DSF) and size exclusion chromatography show different protein structures under different pH values. We observed differences in unfolding temperatures for B. safensis MDH between pHs of 7.4 and 8, but not B. subtilis MDH. Furthermore, we examined the structure of both the MDH's through size exclusion chromatography, where we found that both MDH's are tetramers at pH 8. However, differences in pH disrupted B. safensis tetramers into dimers, potentially changing the enzymatic activity of B. safensis MDH versus B. subtillis. In time, we'll better understand how to utilize B. Safensis' enzymatic properties to our benefit.

Black Identity: Soulaan as an Interference to Nigrescence

Amir Edwards

The people of the African diaspora have encountered many challenges with framing their own identities since the onset of colonisation. In the United States specifically, the constant discourse of what it means to be "Black" and "African American" has been culturally self-destructive. Soulaan, the "Soul autochthonous Americans" is the latest addition to a series of several ideological traditions that have used pro-Black language to camouflage Afroscepticism and anti-Pan-African sentiments. The world that Black people are living in exists through the dominance of whiteness, which makes it important to understand the psychological implications, including their perception of themselves and Black culture. The purpose of this study is to explore the emergence of Soulaan as an ethnic identity and how it entices and interferes with Black people's racial identity development through William E. Cross Nigrescence Model. Using a Digital Ethnography, I analyze social media and other online spaces as a means to study relational behavior and social interactions. I perform content and thematic analysis to look at the language, imagery, and behavior employed within Soulaani spaces (e.g., TikTok videos, blogs, online comments). I reveal and discuss the anti-Blackness within the Soulaan framework and how the adoption and diffusion of that identity in its current form is self-destructive to Black Americans' relationship with the rest of the African diaspora. Lastly, the implications for future research are discussed.

Black Women's Experience in Maternal Healthcare System

Maya Barnes

This project examines Black women's experiences within the U.S. maternal healthcare system, focusing on how systemic racism, implicit bias, and institutional practices shape maternal care and outcomes. Motivated by constant racial disparities in maternal morbidity and mortality, this research centers Black women's voices, which are often overlooked in medical research and healthcare policy. The project contributes to public health and communication scholarship by highlighting how structural inequities and interpersonal interactions intersect in maternal healthcare settings. Using a qualitative research approach, this study analyzed existing scholarly literature, public health data, and firsthand narratives documenting Black women's maternal healthcare experiences. The analysis was organized around key themes, including general healthcare experiences, discrimination, maternal health outcomes, mental health impacts, and needed systemic improvements. An intersectional framework guided the research, emphasizing the role of race, gender, and power within medical institutions. The findings reveal consistent patterns of dismissal, inadequate pain management, limited patient autonomy, and heightened emotional distress during pregnancy, childbirth, and postpartum care. Many narratives reflect a lack of trust between patients and providers, alongside experiences of being unheard or invalidated. However, the research also identifies examples where culturally competent care, patient advocacy, and community-based support improved maternal experiences and outcomes. This project underscores the urgent need for reform in maternal healthcare, including increased provider accountability, anti-bias training, and patient-centered care models. By amplifying Black women's lived experiences, this research emphasizes the importance of health equity and advocates for systemic changes that prioritize safety, dignity, and justice in maternal healthcare.

On the Borderline: Exploring the Lived Experiences of Individuals with Borderline Personality Disorder

Tisha Eve Custodio

This paper provides an in-depth exploration of the lived experiences of individuals diagnosed with Borderline Personality Disorder (BPD), aiming to better understand how people interpret and navigate this complex condition. Using five semi-structured, hour-long interviews, the study examines how participants make sense of BPD, how they re-evaluate earlier life experiences, and how they describe the emotional, relational, and identity-related challenges commonly associated with the disorder. In addition, the interviews shed light on participants' interactions with mental health professionals and their engagement with treatment options, including therapeutic modalities such as Dialectical Behavior Therapy (DBT). Across interviews, several overarching themes emerged: participants frequently reported a shift in self- understanding following diagnosis. Many described ongoing efforts to manage intense emotions and interpersonal dynamics, and most highlighted both benefits and limitations of available treatment approaches. While individual experiences varied, the accounts collectively illustrate the complex dynamic of this diagnosis. More broadly, this research emphasizes the importance of centering first-person perspectives in discussions of BPD, as these narratives challenge common stereotypes and offer insights into the complex experiences of living with the disorder. By highlighting participants' voices, the

study contributes to a more holistic, human-centered understanding of BPD and underscores the need for compassionate, individualized, and contextually informed approaches to mental health support.

Breaking the Gerontocracy: Conditions for Electing Young Officials in Local Politics
Mia Gutierrez

American politics is increasingly marked by gerontocracy; an aging political class that does not reflect the population under the age of forty. Scholars have extensively examined racial, ethnic, and gender representation, but age remains an understudied axis of political inequality. This question fills the research gap by asking: under what conditions do young people get elected to local public office, and does their presence affect governance or policy outcomes? Focusing on thirty stratified city councils in Los Angeles County, I will construct an original dataset which documents the age at first election of approximately 150 officials. I will test whether city size, demographics, and electoral systems shape the likelihood of electing young candidates. I expect younger candidates are more likely to succeed in smaller cities, cities with a younger average age, immigrant majority cities, in city councils rather than state or federal offices, and in district-based elections rather than at large. I then qualitatively assess whether younger officials prioritize different policy agendas than those presented by officials over the age of forty. By analyzing the emergence and governance impact of younger leaders (those under forty), this thesis demonstrates how generational representation has the ability to influence local policy making.

Bringing "The Stray Spirit" to Life: A Scene Study and Script Presentation
Karim Malik

My research question is: To what extent can systems of government move beyond a zero-sum mentality toward a pluralistic framework of coexistence? I was motivated to explore this topic after seeing the growing polarization in today's sociopolitical landscape. This project identifies the intersection between institutional oppression and speculative fiction, which can serve as a reference point when developing other literary works. To obtain results, I wrote a screenplay titled The Stray Spirit. The narrative occurs in a fictitious city where "Paranormal" residents are an allegory for marginalized groups, allowing for a creative simulation of social inequality. I approached the subject using a dual-protagonist creative framework that symbolizes two distinct forms of displacement. The character Maaz serves to explore how structural inequality can lead to internalized resentment toward other marginalized individuals. Meanwhile, through the character Dawn, the effects of paranormal status are explored, primarily in how it leads to them being viewed as illegitimate and publicly vilified. While writing the screenplay, I learned that a zero-sum viewpoint is spread through institutional discrimination and state rhetoric. In particular, Maaz's arc highlights how political systems favoring one group over another do not just lead to communities being marginalized; they also create lateral resentment, causing the oppressed to view each other as threats rather than allies. Through this creative work, I concluded that today's increasing systemic oppression and lateral violence signify a necessity for cross-group solidarity, and that we must look past artificial social divisions to combat systemic structures that benefit from communal discord.

The California Reducing Disparities Project

Jaida Andrews, Yayra Gbagbo

The California Reducing Disparities Project is a statewide mental health initiative designed to improve the psychological wellbeing of five historically underserved populations in California: African American, Latinx, Asian Pacific Native Islander, American Indian/Alaskan Native and LGBTQ+ communities. Within each of these priority populations, seven community-based organizations, called Implementation Pilot Projects (IPPs), were selected by California to demonstrate the effectiveness of community-driven solutions. This study investigated to what extent the IPPs reduced mental health problems for their communities. To assess changes in mental health, IPPs collected data pre- and post-intervention from participants using surveys developed by researchers in the Psychology Applied Research Center (PARC) at LMU. These surveys used five outcome measures. Two, the Kessler 6 and Sheehan Disability Scale, are well-known and widely used psychological distress and functioning measures. Three more, relating to cultural protective factors and social isolation, were developed by PARC scientists. Multiple and multi-level regression analyses were conducted using differences in pre- and post-intervention outcomes. Independent variables included age, race and ethnicity, sexual orientation, gender identity, COVID timing, and current mental health service use. Significant improvements were seen in all five outcomes. Overall, the findings suggest that the culturally responsive and context-specific mental health interventions used by the IPPs provide meaningful mental health improvements.

The Capital Asset Pricing Model in the 21st Century: Accuracy, Limitations, and Relevance in the U.S.

Kelly Supangat

The state of the financial market is driven by speculation. Expectations about future interest rates, inflation, and economic conditions influence current investment decisions and market outcomes. Advances in technology allow information to spread rapidly, increasing speculation about whether the economy is entering a boom or a recession. Forecasting becomes more challenging when unanticipated shocks occur, such as terrorist attacks and sudden geopolitical shocks. Consequently, these disruptions skew future economic conditions and weaken the reliability of standard predictive frameworks. The Capital Asset Pricing Model (CAPM) is one of the most common and foundational models used to forecast expected stock returns. CAPM is widely used because of the simple and intuitive way to relate an investment's systematic risk to its expected return. However, the main problems with CAPM are its unrealistic assumptions and difficulty in accurately estimating beta, the risk-free rate, and the market risk premium. My main research question seeks to answer how well the standard CAPM explains/predicts returns in "normal" periods vs. during rare, unanticipated market shocks, and whether CAPM extensions with extra risk factors outperform the original model. Furthermore, this research seeks to answer whether CAPM extensions with extra risk factors outperform the original model. The motivation behind this research includes identifying the limitations of the traditional CAPM, particularly during the 2000–2025 period when the model fails to capture the economic downturns and major shocks.

A Catalog of Low-Mass Pre-Main Sequence Stellar Objects for Use in Refining Stellar Relations and Models

Ford Bannister

Low-mass stars dominate the stellar population of the Milky Way due to the initial mass function (IMF), yet existing stellar evolution models struggle to accurately reproduce their fundamental properties when compared against direct observations. These discrepancies are especially problematic given the statistical importance of low-mass stars for studies of galactic structure and exoplanet properties. By expanding the sample of well-characterized young low-mass stellar systems, this work aims to address a critical observational gap at early evolutionary stages, where theoretical models are least well calibrated. Using infrared time-domain data from the WISE and NEOWISE surveys, candidate variable systems are identified through the VarWISE machine-learning pipeline and filtered for detached eclipsing binary signatures via phase-folded light curve analysis. These candidates are cross-referenced with Gaia for astrometry and photometry data, as well as stellar catalogs such as SIMBAD for potential source identification and prior classifications. The systems are placed on extinction-corrected color-magnitude diagrams using Gaia astrometry, Bailer-Jones distance estimates, and interstellar dust maps, and are further evaluated with the Banyan Sigma program to assess membership probabilities in known star-forming regions. This workflow produces a vetted catalog of pre-main-sequence low-mass eclipsing binary candidates suitable for future spectroscopic follow-up and radial-velocity analysis, eventually enabling model-independent measurements of stellar masses and radii. By providing expanded and refined age context and physical characterization for young low-mass systems, this catalog can strengthen empirical constraints on low-mass stellar evolution and improve the interpretation of exoplanet properties and galactic stellar populations.

Characteristics of Carpobrotus Edulis that Promote Slope Erosion

Ryan Bui

Loyola Marymount University's bluff has large areas covered by Carpobrotus edulis, more commonly known as ice plant. During the 2023-2024 rain year, the bluffs experienced significant erosion, particularly on slopes with ice plant. Ice plant was introduced along California's coast for erosion control; however, evidence suggests that its shallow root system, high above-ground biomass, and capacity for foliar water uptake may instead promote erosion during rain events. This study looks at these characteristics in plants grown under both wet and droughted conditions, as well as those harvested from the bluffs. Texture was determined for bluff soils with iceplant, and plants were also grown in different soil textures. Water content of roots and shoots was determined (63 % for roots, 92 % for stems, and 94 % for leaves harvested from the bluff), together with the root: shoot ratio. Water uptake through the leaves and shoots was investigated by leaf wetting and using dyes to determine the site of water uptake. It is predicted that water uptake through the leaves during rain events could significantly increase the mass of the shoot leading to a low root: shoot ratio that may actively promote erosion.

On Cinematic Ghosts as Societal Symptoms of Repression

Eamonn Welliver

Ghosts have long been a crucial part of cinematic storytelling. Ghost stories have consistently provided a compelling reflection of human psychology through the medium and presence of a haunting spectre. In this essay I will engage in a close examination of the historical context for the films Insidious, Kuroneko, Mama and Ringu to reveal how each of these four films delve into a specific psychological and social repression, with some thematic overlap. These films directly represent ideas set forth in Freud's The Uncanny. This includes but is not limited to the inversion of the maternal figure, the return of the repressed, and the deconstruction of an idealized cinematic archetype. Important here is Mama's unsubtle inversion of the mother figure as something ghastly and monstrous yet caring all the same. Kuroneko subverts the usually noble samurai archetype and depicts him as a boisterous, sexually violent, and corrupt force. Zvika Serper and Irene Baena-Cuder's articles complement Freud's theory of the uncanny and establish that regardless of time and place, the ghost film always points to a society's widespread neuroses. I show how the details of plot and character may differ from one film to another, but the core tenet of a ghost's symbolism must always be representative of individual and collective repression.

Click, Pay, Forget: The Psychological Impact of Frictionless Payment Systems

Tanvi Kalakuntla, Parineeta Aggarwal

As cashless and mobile payment technologies become increasingly prevalent, the act of paying is increasingly separated from the tangible experience of parting with money. This study examines whether frictionless payment systems reduce the psychological cost of paying and thereby increase consumers' willingness to pay. Drawing on behavioral economic models of mental accounting, loss aversion, and payment salience, we propose that checkout systems requiring minimal cognitive and procedural effort reduce the perceived immediacy of loss at the moment of payment. Lower payment salience may weaken loss framing and attenuate negative affect, leading to higher valuations. We propose a randomized survey experiment in which participants are assigned to one of two checkout conditions. In the high-friction condition, participants complete a manual checkout scenario requiring card entry and explicit review of the total price. In the low-friction condition, participants encounter a seamless one-click payment scenario that minimizes procedural effort and attention to the transaction. After reading the vignette, participants complete a validated pain-of-paying scale and report their maximum willingness to pay. We hypothesize that reduced transaction friction will decrease reported pain of paying and increase willingness to pay. By providing causal evidence on how payment design affects pain of paying and valuation, this study contributes to consumption behaviour literature and informs discussions surrounding ethical fintech design and consumer financial well-being in increasingly frictionless marketplaces.

Coastal Construction and Carbon Storage: A Comparative Study of Sediment Stored CO2 Across Development Stages

Mariam Tadevosyan, Elle Komara

Marine and coastal ecosystems serve as critical carbon sinks, yet their capacity for sequestration is in a constant state of being threatened by various sources of anthropogenic coastal development and land-use changes. This research study investigates the impact of coastal construction and numerous catastrophic events on carbon dioxide (CO2) storage that can be found within marine sediments, located in the Los Angeles region. Specifically, it examines how chronic runoff from construction projects interacts with the sudden addition of debris and toxic materials following the massive man-made wildfire that occurred in January 2025, the Palisades Fire. Utilizing a comparative framework, sediment samples were collected from three chronologically distinct sites: Point Dume (fire disturbance) (34°0′3.14″N 118°48′24.62″), Cabrillo Beach (active construction) (33° 42' 39.6" N, 118° 17' 2.4" W), and Sunset Point Beach (post-construction) (34° 2' N, 118° 33' W). Analysis incorporated water quality monitoring via YSI, grain size distribution, and quantification of organic and inorganic carbon as a proxy for CO2 sequestered in the sediments. This study connects how ongoing construction and sudden wildfire runoff can influence ocean chemistry, providing detailed data to help improve coastal protection initiatives. This study demonstrates the ability of sediments to store carbon with the combined stress of city growth and natural disasters like wildfires.

Computational Investigation of the Structural and Electronic Effects of Phenyl, Alkyl, 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.

Concussion History and Balance Assessment in Healthy Adults

Isabella Cuellar, Sara Epps, Addy Kusek

This research project seeks to investigate the relationship between previous orthopedic injuries and concussions and if they affect balance in healthy adults. This project includes a short survey about orthopedic injury and concussion history followed by a balance assessment using the Stability Evaluation Test (SET) on the NeuroCom® Balance Manager force plate system. This includes 6 types of balance tests and measures the velocity of the sway as well as the direction of the sway. Hypothesis: people with history of lower-extremity and/or concussion injuries will decrease balance in comparison to healthy adults who have not experienced such injuries. Results are ongoing.

The Correlation Between Time Spent with Friends and Life Satisfaction in Older Adults: A Mini Meta-Analysis

Kathryn Duff

Life Satisfaction has been identified as an important indicator of well-being in older adulthood (Nguyen et al., 2015). Previous research has explored the association between social engagement and life satisfaction because, as individuals age, their social networks change. The present study, a mini meta-analysis of peer-reviewed articles from the past 40 years, aims to examine the correlation between life satisfaction among older adults and time spent with friends. Inclusion criteria were peer-reviewed journal articles that reported outcomes on life satisfaction, conducted within Western countries with people aged 55 years or older, and provided data on the reported effect size and the ability to calculate Pearson's r. We operationally defined time spent with friends as the frequency of interactions with friends, and life satisfaction as scores from a questionnaire administered to participants. All 5 Pearson's r correlations were analyzed to compute the mean weighted r, and the results showed a statistically significant ($p < .05$) positive correlation ($r = 0.10$) between time spent with friends and life satisfaction in older adults. For older adults, an increase in the amount of time spent with friends is associated with an increase in life satisfaction. Limitations of this study include the possibility that these five studies do not accurately represent the research and that, because self-reported measures were used, results may be inaccurate. Future research should focus on other geographical locations and/or social engagements, friends, and family, in relation to life satisfaction.

Costume Designing the York Mystery Plays

Cori Graham

This project focused on the historical research and costume design for three of the 48 York Corpus Christi Plays, performed at a festival hosted by the Centre for Renaissance and Reformation Studies at the University of Toronto. The purpose of this project was to develop historically accurate, practical, and creative costumes that illustrated the storytelling of medieval biblical plays. As the costume designer, my objective was to create designs that honored the historical context of the plays while remaining functional for travel and performance. Due to the fact that we traveled to Toronto with these costumes, there were a lot of restrictions that had to be

taken into account while I designed. Using a hybrid research methodology, I combined the study of medieval costume history with hands-on production at the LMU costume shop. I designed and crafted costumes for a fourteen-member cast over a six-week period. While the project has concluded, predicted outcomes such as historical accuracy, practicality, and design effectiveness were achieved. I took inspiration from the Lady of Guadalupe for my designs of the Virgin Mary. Along with that I drew my inspiration from various 14th century Catholic paintings and works of art. I was inspired by the idea of uniformity and meekness I saw and used that to create the Angel costumes. The significance of this work lies in its artistic and academic contributions to historical theatre, but also in creating history at the York Mystery Plays Festival.

Cultural Differences in Competitive Mindsets: Comparing How Athletes from Different Cultural Backgrounds Approach Competition, Teamwork, and Motivation

Zayad Hyder

Athletic performance and mindsets can be influenced by a variety of psychological factors. However, the influence of cultural backgrounds in shaping approaches to teamwork, competition, and motivation has been comparatively understudied. This exploratory study investigated how the cultural backgrounds and values of collegiate athletes, particularly individualistic and collectivistic values, influence their attitudes and approaches toward teamwork. The study utilized a comparative cross-sectional survey designed for athletes. Participant responses came from collegiate athletes from multiple universities in the United States. The survey consisted of demographic items and a 5-point Likert scale that assessed athletes' personal values related to competition and teamwork, to capture collectivistic versus individualistic tendencies and orientations. Analyses focused on comparing survey responses across cultural groups based on nationality and ethnicity, excluding individual sport athletes to maintain a narrow focus on team-based dynamics. Due to a small final sample size, findings were limited to descriptive and preliminary comparisons. Initial trends were generally consistent with the hypotheses, suggesting that athletes who align more closely with collectivistic values placed greater emphasis on team cohesion and group success, whereas those endorsing more individualistic values emphasized personal performance and individual achievement. Although the small sample size limits any definitive conclusions, these findings highlight the potential influence of cultural values on athlete motivation and team behavior. These insights can potentially inform and help coaches, sports psychologists, and athletic staff design training and support strategies that are effective for a range of athletes from all backgrounds.

Design of Robotic Vehicle for Storm Drain Analysis of Nutrients and Contaminants

Noah Dangcil

Urban stormwater runoff is a major source of marine pollution, transporting nutrients as well as contaminants. These contaminants can accumulate in sediments and contribute to eutrophication and pollution, posing a serious threat to sensitive habitats such as eelgrass (Zostera marina) meadows. Eelgrass provides critical ecosystem services, including sediment stabilization, carbon sequestration, and habitat for marine biodiversity, yet is highly sensitive to water changes. Cabrillo Bay has one of the biggest eelgrass habitats in California and is in close proximity to nearby storm drains that release runoff directly into it. We designed and constructed a

compact, waterproof, low-cost robotic sampler capable of navigating storm drains to collect water for laboratory analysis. It is equipped with live camera feeds and a syringe pump-based system to collect sufficient water volumes for standard laboratory analyses. The robot was developed at Loyola Marymount University, where collected samples were tested across multiple parameters including nitrates, phosphates, E. coli, and microplastics. Water quality within storm drains was compared to conditions measured within eelgrass meadows to evaluate the extent to which runoff contaminants impact the ecosystem health. While analysis is still ongoing, we expect that the water pouring out of the storm drains has significantly poorer quality compared to the water quality needed for proper eelgrass growth. By integrating robotics and environmental science, this research aims to improve understanding of stormwater impacts on eelgrass ecosystems.

Designing for Ease and Dignity: A Bucket Cleaning System for Compost Toilets

Mackenzie Kawashiri, Isaac Sorensen

At the monastery, buckets used for compost toilets were previously cleaned by manual scrubbing, a labor-intensive and undesirable task for community members. To address this issue, a simple, low-cost bucket cleaning system was designed and fabricated to reduce physical effort while maintaining effective cleaning. The proposed system uses a foot-operated pump connected to a water hose, allowing pressurized water to be sprayed through a nozzle to clean the interior sides of the bucket. The design enables hands-free operation, improving user convenience and hygiene. The system consists of a piped structure with a slight dip to prevent runoff and ensure controlled water flow, followed by a vertical pipe section supported by brackets to maintain stability during use. This configuration allows buckets to be positioned easily for thorough internal rinsing. The design was developed based on practical considerations of ease of use, simplicity, and suitability for the monastery's daily routines. The bucket cleaning system benefits all members of the monastery who use compost toilets by eliminating the need for manual scrubbing and streamlining the cleaning process. This project demonstrates how straightforward mechanical design solutions can significantly improve everyday sanitation practices in community settings.

Developing a Protocol for Evaluating In Vitro Transcribed RNA Integrity Using the Agilent 4150 TapeStation

Alexander Chavez, Augustus Soedarmono

To better understand the link between RNA structure and protein synthesis, our lab altered the structures of various RNA samples. Dual luciferase frameshift assays, using in vitro transcribed RNA, were conducted to explore the effects that such changes had on protein expression. RNA integrity was previously assessed through a gel, which led to a subjective determination that the samples were ready for the frameshift assay. Unfortunately, a small portion of seemingly similar RNA samples yielded inconsistent frameshift assay results. To address this problem, our research group pivoted to a more quantitative evaluation of RNA integrity. The Agilent 4150 TapeStation offers such a method to evaluate integrity, which should improve downstream reproducibility. However, after reviewing the Tapestation literature, there was a lack of instruction on how to use the TapeStation to evaluate RNA degradation levels. Therefore, a protocol was created for the TapeStation to guide students in

this lab on assessing RNA quality. This includes instructions on evaluating the gel and electropherogram produced by the TapeStation. Directions are also included on how to navigate the TapeStation Analysis software to obtain an accurate % Integrated Area for the RNA peak, as well as how to interpret the % Integrated Area to see if it's sufficient to move on with the frameshift assay. This protocol was applied to evaluate current RNA samples created for one project in the lab. From those results, we were able to identify the best RNAs to use in subsequent experiments, to ideally obtain reproducible frameshift assay results.

Developing and Refining Age-Appropriate Measures of Intersectional Intergroup Attitudes Among Elementary School Children

Ryan Anderson, Colson Lee, Dee Gbagbo, Vittoria Spagnoletto, Mason Vance

The current study focused on developing and refining age-appropriate measures of intersectional intergroup attitudes—namely, stereotypes, prejudice, and discrimination—in elementary school students. Grounded in an intersectionality framework (Crenshaw, 1989), we used Instagram-like profiles to operationalize the intersection of social identities and examine whether and how they shape children's intergroup attitudes. We created 32 fictitious Instagram profiles of elementary school students that varied systematically by race/ethnicity (Asian, Black, Latinx, White), gender (male/female), gender expression (conforming/nonconforming), and socioeconomic status (high/low). Instagram is an excellent tool to provide a visually easy way to comprehend representations of individuals who come from diverse backgrounds and allows effective operationalization of their identities. Each profile included a headshot, name, brief description, and two posts. Using ChatGPT, each social identity was operationalized through targeted prompts developed by the research team. Gender was operationalized through binary gendered names, hairstyle, and facial features (Faghel-Soubeyrand et al., 2021); race/ethnicity through racialized/ethnic last names and phenotypic features such as skin color cues (Freeman et al., 2010); gender conformity through congruence to stereotypic-gendered toys featured in posts; and socioeconomic status through posts furniture/lighting. Using a stratified random allocation algorithm, seven packet versions were created, each containing a profile of each race, and no more than three profiles shared the same gender, gender conformity, or SES, ensuring diversity within each packet. Our work makes important methodological contributions by beginning to address the ways in which social identities' intersections can be represented in research among elementary school children.

Development of a Carbon Accounting Platform at a Higher Education Institution

Eva Chahbazian

In recent decades, anthropogenic activity and corresponding greenhouse gas (GHG) emissions have seen a significant increase, thus posing a detriment to environmental sustainability. Subsequently, the monitoring and reporting of these emissions, through a process known as carbon accounting, has been of heightened importance due to increasing legislation and consumer desires. Organizations throughout the United States adhere to the carbon accounting standard known as the Greenhouse Gas Protocol produced by the World Resources Institute and the World Business Council for Sustainable Development. The current carbon accounting platform in use at Loyola Marymount University (LMU) is the Sustainability, Indicator Management & Analysis

Platform (SIMAP). SIMAP imposes limitations including uncertainty in reliability of calculations, financial strain to LMU, and a lack of guaranteed long-term use. With the development of a new carbon accounting calculator in Microsoft Excel, we expect improvements of LMU's emissions tracking and reporting practices. Following the GHG Protocol Corporate and Value Chain Accounting and Reporting Standards, this new calculator will holistically outline emission sources of the university. Data from SIMAP and the new platform will produce total metric tons of carbon dioxide equivalent (MTCDE) for the years 2017-2025, which will be analyzed via a regression analysis to support the improved performance of the new platform. Moving forward, the establishment of this new calculator will assist in the carbon footprint reporting of Loyola Marymount University for many years to come, maintaining its status as a sustainable university, an important attribute to prospective students and investors.

DFT and TD-DFT Investigation of Structural, Electronic, and Binding Properties of Fully Substituted Twistacenes

Abydale Sotelo

Twistacenes are derived from acenes, linearly fused benzene rings, with substituents whose steric interactions induce helical twisting structures in otherwise planar molecules. These π-conjugated molecules may be useful in applications ranging from advanced electronic materials to photodynamic therapies. Of current interest is their ability to bind, capture, and release singlet oxygen. Theoretically, functionalized twistacenes can be used for molecular capture, an avenue of consideration in overcoming pollution and improving air quality. Previous studies have suggested that -NH2 and -OH can potentially act as n-type transport in acene-based systems. In similar settings, -NO2 and -CN have displayed potential as n-type semiconductors. In this study, we employed density functional theory (DFT) and time-dependent density functional theory (TD-DFT) calculations to investigate fully substituted acene structures ranging from naphthalene to heptacene using –NH2, -CN, -NO2, and –OH derivatives. We analyzed the electronic and structural features to quantify substituent-dependent trends, including HOMO-LUMO gap trends, ionization and electron attachment characteristics, and singlet-triplet differences. Also, we performed binding energy calculations to compare substituent-dependent binding interactions. Broadly, we show the degree of twist for substituted acenes increases as the acene chain grows. However, the degree of twist differs depending on the substituent. Gibbs free energy calculations show competition between a few local minima structures based on the type of substituent, as well as inter-substituent interactions. Collectively, this study provides further insight into the potential applications of twistacenes by expanding our fundamental understanding of the structural, electronic, and binding trends of fully substituted acenes.

Diabetes Risk in U.S. Adults: Associations with Depressive Symptoms and Vigorous Physical Activity

Beverly Mutuku

Diabetes is typically framed around age and body composition, but mental health and lifestyle behaviors may provide additional insight into diabetes risk beyond traditional metabolic predictors. This project examines whether depressive symptoms and vigorous physical activity are associated with the risk of diabetes among U.S.

adults using the National Health and Nutrition Examination Survey (NHANES) 2017–2018. Diabetes is defined using laboratory-measured glycohemoglobin (HbA1c ≥ 6.5%), an objective outcome independent of self-reported diagnosis. Depressive symptoms are summarized using a standard symptom scale, and vigorous physical activity is measured using a self-reported survey item indicating whether respondents engage in vigorous activity. We use logistic regression models to estimate associations with diabetes while adjusting for age, sex, and body mass index (BMI). Secondary analyses explore whether the association between vigorous physical activity and diabetes risk differs across levels of depressive symptoms. Preliminary results suggest that higher depressive symptom severity is associated with increased odds of diabetes after adjustment, while vigorous physical activity is associated with reduced odds. These results support a broader framing of diabetes risk that integrates mental health and behavioral factors alongside metabolic predictors and illustrate how nationally representative health data with laboratory outcomes can be used to assess chronic disease risk.

Differences in Peripheral Blood Mononuclear Cell Mitochondrial Function Between Men and Women
Chloe Hooker

This study investigates PBMC, peripheral blood mononuclear cells, mitochondrial function between men and women based on their fitness levels. Chronic exercise training improves immune function by stimulating an anti-inflammatory status, while acute bouts of exercise mobilize immune cells, specifically by increasing PBMC concentration. Based on the effects of exercise, we would expect there to be a relationship between fitness level and PBMC mitochondrial function. PURPOSE: The purpose of this study is to determine whether there's a difference in PBMC mitochondrial function between men and women due to differences in their fitness levels. METHODS: There was a total of 28 participants (13 females, 15 males, 21.84 ± 2.78 years old) recruited who provided a fasted blood sample followed immediately by a graded exercise test to measure VO2 max. PBMCs were isolated from the blood sample and then high-resolution respiration was used to measure mitochondrial respiratory capacity. RESULTS: The respiratory states show that VO2 max was higher in males than females, which was assumed to relate to the higher fitness levels of males observed (State 3 PGM= 0.886 pmol O2/sec/10-6, 0.035 pmol O2/sec/10-6; State 3 PGM S= 0.598 pmol O2/sec/10-6, 0.126 pmol O2/sec/10-6; ETS CI-CIV= 0.220 pmol O2/sec/10-6, 0.0327 pmol O2/sec/10-6). However, there is no relationship between cardiorespiratory fitness and PBMC mitochondrial function because the relationships were not statistically significant (p=0.589) and the R2 values were low (R2=0.053). CONCLUSION: The differences seen in PBMC mitochondrial function between men and women can't be attributed to differences in fitness levels that was previously assumed.

Differing Perspectives of the Pharmacological Treatment of ADHD
Anika Karan

This paper examines perspectives regarding medication treatment for Attention Deficit Hyperactivity Disorder (ADHD) across parents, clinicians, school staff and therapy. Following analysis of eight semi-structured interviews with 3 parents, 1 school staff, 3 licensed clinicians and 1 neurologist, I found differing views on ADHD medication and treatment. These divergent viewpoints demonstrate how difficult it is to make decisions about

ADHD medication and how different factors influence how treatment is perceived and implemented effectively. The analysis shows that although all groups acknowledge ADHD as a prevalent neurodevelopmental disorder that requires help, opinions on the function, advantages, dangers, and timing of medication differ greatly. School staff concentrated on the daily behavioral and academic effects of regular medication use, clinicians stressed dosage, symptom management, and long-term developmental outcomes, and parents frequently expressed confusion and emotional uncertainty regarding the diagnosis and treatment decision-making process. These differing viewpoints emphasize the multifaceted nature of treatment choices and show how the social factors and professional background influence perceptions of ADHD medication.

Digital Veterans Legacy Project - Social Justice in Action: Service and Engaged Learning Experiences
Dhwani Jain, Rahma Al Lamki

The Digital Veterans Legacy Project focuses on uplifting underrepresented veterans, particularly Buffalo Soldiers and Asian American veterans interred at the Los Angeles National Cemetery. The project is led by a multidisciplinary team of LMU scholars and is affiliated with the U.S. Department of Veterans Affairs and the National Cemetery Administration. Its purpose is to document and preserve the histories of veterans whose stories have often been overlooked. As an engaged learning experience, the project was structured through a grant-funded research initiative. Student research interns collect and verify information on selected veterans using sources such as Ancestry and Find a Grave. This information is compiled into digital content, including biographies and exhibits, which are uploaded to the Veterans Legacy Memorial website. The research is also used across multiple LMU courses to support learning in philosophy, psychology, and African American studies. Intellectually, the project strengthened our research, documentation, and critical evaluation skills. Personally, and spiritually, it was deeply meaningful and humbling to be entrusted with helping honor individuals who served our country but were not always recognized. This experience aligned with LMU's Jesuit and Ignatian values by emphasizing reflection, justice, and service to others. The project benefited veterans' families and the broader community by restoring visibility to underrepresented service members, preserving their legacies, and acknowledging their sacrifices and contributions.

Displacement Without Leaving: Long-Term Renters in Inglewood
Juliana Roman

I will be examining how long-term renters in Inglewood experience and respond to displacement pressure following the development of major sports venues, specifically SoFi Stadium and the Intuit Dome. Inglewood has historically been a predominantly Black and Latino working-class community, however, rapid redevelopment and increased private investment have accelerated housing market changes that place growing strain on long-term residents and how community bonds are affected. I want to understand how renters who remain in the neighborhood navigate rising rents, threats of displacement, and ongoing neighborhood change while attempting to maintain stability in their everyday lives. Many community members report difficulty adapting to rent increases, often taking on additional work, negotiating with landlords, or considering relocation despite strong social and cultural ties to the neighborhood. These strategies reflect the ways residents attempt to remain

rooted in place while responding to increasing economic pressures. Beyond economic strain, residents describe significant emotional and psychological impacts, including anxiety, fear of instability, and concern over the erosion of their neighborhood's authenticity and cultural identity. By centering the lived experiences of renters who remain in Inglewood, displacement is an ongoing and cumulative process rather than a single event. Displacement goes beyond physical relocation, shaping how remaining residents experience ongoing change, instability, and shifting community dynamics over time.

Disruption of the Embryonic Serotonergic System Affects Neural Crest Derivatives in the Heart
Mandoline Ngyuen

Background: Many prescribed pharmaceuticals act on the serotonergic system. Best known for its role as a neurotransmitter in the adult, serotonin also regulates migration and differentiation of embryonic neural crest cells (NCCs), a cell population that contributes extensively to cardiac development. NCC maldevelopment remains a major cause of congenital malformations. Because serotonergic receptors are common pharmacological targets, understanding how pharmaceuticals disrupt NCCs and their derived structures is critical. Pharmaceuticals of clinical interest include psilocybin, whose active metabolite psilocin targets serotonin receptors. Therefore, we aim to study the effect of disrupting the embryonic serotonergic system by exposing the chicken embryo to psilocin, a broad serotonergic agonist, or 1-methylpsilocin (1-MP), a more precise serotonergic inverse agonist. Methods: Chicken embryos were treated with 20 μM of 1-MP or 100 μM of psilocin at Day 1 before NCCs begin migration. Embryos were then collected at Day 10, when the heart has fully formed. Day 10 embryo torsos were embedded and sectioned sagittally to view the heart. Results: Embryos exposed to 1-MP exhibited circulatory defects, including increased amounts of hemorrhage and edema overall. 1-MP treated hearts present with abnormal cardiac anatomy, including smoothened trabecular patterning relative to controls. Interestingly, several experimental hearts lacked ventricles entirely. Morphometric analysis of the cardiac valves revealed thinned atrioventricular valves and variable semilunar valve morphology. Psilocin-treated hearts also showed thinned cardiac valves and tricuspid valves containing a hole at the leaflet tip. Conclusion: Together, these findings indicate that serotonergic signaling is required for valve development, but a mechanism remains unknown.

DNA Extraction & Metabarcoding to Assess the Diet and Nest Feeding Behavior of the Great Black-Backed Gull (Larus Marinus)
Noopur Barve

This research focuses on DNA analysis of cloacal samples from the Great Black-backed Gull (Larus marinus) on Appledore Island, Maine to better understand Great Black-backed Gulls' parental feeding habits and ecological interactions as an apex predator. Cloacal samples from 2025 (N = 208) have been collected from parents and chicks in various nests. Analyzing these samples will assess the diet, foraging, and nest-feeding habits of the Great Black-backed Gull by examining nest-specific differences in prey consumption. To obtain these findings, this research uses the unique methodology of metabarcoding, an efficient and thorough DNA analysis method to determine if there is empirical support for the presence of a specific species in an individual's diet, making it

an important technique to understand ecology and diet of different species. Thus far, DNA has been extracted and processed from 12 samples, and 44 species have been cross-referenced against the sequenced DNA. The most frequent species detected within this sample set are Leucophaeus atricilla, Sterna hirundo, Cancer borealis, Camponotus pennsylvanicus, and Ammodytes americanus. The frequency of these species can help to determine what species chicks are being fed, at what trophic level, and parental feeding habits. To our knowledge, this is the first diet analysis of Great Black-backed Gulls in North America conducted to this degree of precision. This research will provide a greater understanding of the diet of the Great Black-backed Gull and open up future possibilities for metabarcoding in avian diet analysis to allow for greater specificity in research findings.

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 viral proteins, and they regulate viral protein synthesis by altering how the RNA is read by a host ribosome via a programed -1 ribosomal frameshift (-1 PRF). These frameshift sites include a slippery sequence, a single stranded spacer, and 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 was analyzed using circular dichroism. Specifically, spectra were collected for samples in which base-triples can and cannot form. The ratio of positive to negative bands of each spectrum were compared to look for evidence of base-triple formation, which would be observed if a triplex structure had formed. The ratios found did not show a clear signature that a triplex is present in the frameshift site, but it is still possible that base-triples are still present. Since the RNA studied contained single stranded regions, these could have impacted the ratios in unexpected ways. The study shows that this method may not be sufficient to study base-triples, and in the future, a method that can more definitively identify base-triples, such as NMR, should be used.

Does Parental Provisioning Shift Throughout Chick Development in Great Black-Backed Gulls?

Rebecca Olvera, Matisse McKenna, Sofia Carranza

Diet differences within and across Great Black-backed Gull (Larus marinus) broods affect chick growth and survival, but these differences are not always easy to document. Stable isotope analysis of feathers allows us to examine diets of individuals throughout their developmental stages: hatchling (day of hatch), mid-growth (~20 days old), and pre-fledgling (~40 days old). For our research, we use stable isotopes analysis, focusing on carbon and nitrogen isotope levels to assess food sources (marine vs. terrestrial) and trophic level, respectively.

Preliminary results show carbon isotope level differences in hatchlings and nitrogen isotope level differences in pre-fledgling. To expand on these results, we are taking a repeated sampling approach and tracking the same individuals throughout development. This will allow us to determine what parental provisioning shifts occur throughout the chick growth period and track the effects of these shifts. In 2023, we established 5 nests to focus on repeated sampling throughout the individual chicks' development and increased this number of nests to 15 nests in 2024 and 2025. These samples are in processing, and we hope that their analysis reflect our previous results and further help us understand how and when Great Black-backed Gull parental feeding strategies change through the breeding season and how these differences may impact chick survival.

Does Satisfaction of Received Social Support Relate to Supporter Behavior and Emotion Regulation Strategies?

Tiia Lachance, Samantha Kelley

When experiencing stressors, one friend may seek out and receive social support from another friend. Satisfaction with received social support is related to many factors such as affective processes and behavioral expressions. In this study, we investigated whether support satisfaction was related to specific emotion regulation strategies and nonverbal behaviors as expressed by the friend offering support (supporter). We hypothesized that higher support satisfaction would be related to the supporter emotion regulation strategies of: better emotion processing (tendency to process/think about own feelings while coping with stress), lower expressive suppression (tendency to suppress the expression of emotions), and lower brooding (tendency to ruminate on causes for feeling bad). We also predicted that more supporter nodding and longer supporter speaking time would relate to support satisfaction. Participants were friend pairs randomly assigned to one of two roles in an 8-min videotaped interaction: supporter, who provided social support; or receiver, who discussed a current stressor and received social support. Supporters (N = 143) were 88 women, 54 men, and 1 not reporting gender (mean age = 19.02). Following the interaction, all participants completed mood, affective, and emotion regulation measures. Participants also rated the interaction with support satisfaction scores calculated based on the receiver's interaction ratings of their partner (supporter). Supporter speaking time and nodding was measured by reliable coders. In a regression analysis, receiver support satisfaction was not predicted by the supporter emotion regulation strategies of emotion processing, expressive suppression, or brooding at statistically significant levels (all ps > .09). Yet, receiver support satisfaction was statistically significantly predicted by supporter gender (female) and more speaking time (ps < .01), though supporter nods did not. Hypotheses were only partially supported indicating supporter speaking time and gender predict satisfaction with social support received in an interaction.

Does Welfare Fare Well? Understanding Socio-Political and Theological Attitudes Towards Western European Welfare Systems

Antoine Corbani

My project will explore how religious identification might shape attitudes towards different welfare programs in Western Europe, specifically with a focus on France and the United Kingdom. Previous research has suggested

that religion can be a meaningful predictor of welfare attitudes—my study will analyze such dynamics within a more targeted geographic framework. I will field original surveys and survey experiments to understand how denominational affiliation, religiosity, and theological orientation may influence support for various welfare policies. The role that large waves of extra-European immigration to these countries play in shaping welfare attitudes will also be addressed, considering that ethno-religious demographics are rapidly changing in France and the UK as a result. My analysis will rely on regression models and a historical review of theological/practical incorporations of social welfare within the three Abrahamic faiths: Christianity, Islam, and Judaism. I anticipate providing a deeper understanding of the interactions between religion and socio-political behavior in Western Europe within a broader context of progressive cultural and demographic change and religious resurgence (particularly amongst European youth), whilst also accounting for generational, socioeconomic, and national factors at play.

The Dual Nature of Familismo in the Latinx Family System
Carolina Hernandez

The Latinx family system represents a network of interconnected individuals who are called to negotiate between their family's values and their own. As a cultural value, familismo prompts this negotiation that reflects the Latinx community's emphasis on strong family ties and familial obligations. In my project, I bring together research in family psychology on Latinx views of mental health with an ethnic studies understanding of the power dynamics situated within families of color. To exemplify these insights, I reviewed the Latinx-produced Netflix series One Day at a Time, which follows a Latinx family living in an intergenerational household. As a result, I unraveled the dual nature of familismo in fortifying the union of the Latinx family system and in triggering tension between members. Through critical analysis, I learned about the cultural negotiation of values and their role in the stigmatization of Latinx mental health. I learned about familismo's complexity as it can necessitate familial support, while simultaneously imposing pressure on family members. My research project is significant as it has the potential to prompt necessary space-making, critical analysis of mental health stigma, and a flexible approach to understanding the implications of the Latinx family system in psychological practices. My project makes a practical contribution to the field of psychology as it reveals how familismo contributes to the stigmatization of Latinx mental health. Ultimately, my research project is significant because it calls for further investigation and the implementation of culturally responsive practices in the field of psychology.

The Early Christianization of Rome: Practice and Imagery of the Christian Faith Milka Zekarias
Milka Zekarias

Modern-day Rome, capital of Italy, is widely recognized as a central focal point for Christianity and Catholicism. Yet its religious identity emerged from a history of pagan tradition and Roman mythology. Christianization, or the process of spreading and converting individuals and societies to Christianity, was not a sudden transformation. When Christianity first emerged, paganism and the worship of Roman gods were the accepted societal norms, so those in power perceived the refusal to offer sacrifices and participate in this worship as a form of political defiance. Christianization was a gradual process shaped by sporadic persecution, the spiritual

resilience of Christians, the fusion of the state and Church, and the evolution of Christian iconography. This paper examines how ambiguous imagery enabled early Christians to practice their faith and communicate hope in house churches as imperial persecutions produced martyrs whose relics and memorials sanctified the city. Constantine's Edict of Milan officially recognized Christianity in 313 CE, marking a critical shift as worship transitioned from private to public spaces, in state-sponsored churches sanctified with relics of martyrs. As Christian practice moved into the public sphere, religious imagery evolved in both form and function. Earlier imagery incited hope and perseverance, whereas later depictions of Christ on the cross were more of a proud display of Christ's glorious state. This research project argues that through Christian persecution, strategic imperial involvement, and the changing function and meaning of Christian imagery, the Christianization of Rome went beyond religious conversion, fundamentally reshaping Roman social structure and cultural identity.

Earned Pauperism: Valorized Poverty and the Moral Logic Behind White Working-Class Opposition to Welfare Reform

Lucy Curran

Analysts of welfare policy have argued that the US's welfare system was racially reconfigured in the wake of the 1996 Welfare and Reform Act. Regardless of what reformers' intentions may have been, this reconfiguration bound many nonwhite working-class people to a caricature of someone outside the public body who is undeserving, criminal, and foreign. This change opened the welfare state as a political battleground, questioning the legitimacy and economic and public benefit of welfare provision. Since the COVID-19 Pandemic and the increase in anti-immigrant sentiments the Supplemental Nutrition Assistance Program (SNAP) has come to the foreground of this opposition, particularly from those who benefit from SNAP the most – white working-class people. This segment of the working class reflects a unique tension between class-based material interests and racial identity. This study looks at popular political discourse regarding SNAP benefits by fore fronting race as an analytic lens, asking how racial solidarity has constructed the white working-class's logic of what SNAP benefits do and who they primarily serve. I hypothesize that members of the white working class resolve the tension between class interests and racial identification by choosing racial solidarity despite the material harm it causes. I build on literature exploring how racialized notions of deservingness tie ideas of productivity and self-reliance to national belonging. This understanding of deservingness translates structural inequality into a moral understanding, allowing racialized assessments of worth to appear as commonsense evaluations of responsibility and obfuscates the harm current redistributive policies cause to all those it claims to serve.

The Economic Implications of the Trump Presidency: A Macroeconomic Perspective on Presidential Actions

Landon Dysart

This study investigates the indirect influence of executive leadership on macroeconomic performance, focusing specifically on the first term of President Donald J. Trump and the implications of his return to office in 2025. While the U.S. executive branch lacks direct control over market mechanics, this research posits that presidents exert significant influence through legislative initiatives, administrative priorities, and public messaging. Utilizing

data from the Bureau of Economic Analysis (BEA), the Bureau of Labor Statistics (BLS), and the Conference Board, the study analyzes term averages for real GDP growth, unemployment, inflation, and consumer confidence to evaluate the impact of the administration's policy shifts. The findings indicate that the Trump administration presided over robust economic indicators prior to the 2020 global health crisis, particularly regarding low unemployment and elevated consumer sentiment. However, the analysis identifies significant methodological challenges in isolating policy-driven outcomes from the exogenous shock of the COVID-19 pandemic and the delayed effects of the Tax Cuts and Jobs Act of 2017. The rapid economic contraction in early 2020 complicates the assessment of long-term fiscal strategies, yet the recurrence of these policies in 2025 offers a unique opportunity to study the effects of regime consistency. Ultimately, this research provides a foundational framework for political economy by highlighting the complexities of presidential transitions and the psychological levers of economic governance, offering a basis for future regression-based inquiries into the depth and breadth of executive influence on the national economy.

Effects of Acute Aerobic Exercise on Lipreading

Zoe McMullen, Jeffrey Go, Olivia de la Fuente, William Gordon

Research demonstrates that regular aerobic exercise can enhance cognitive performance. However, much of this literature has primarily focused on the effects of exercise on memory in older adults, and much less is known about its impact on perceptual processes. A recent study in our lab demonstrated that 30 minutes of cycling on a stationary bicycle improved speech perception ability in young adults. The current experiment builds on this work. The objective of this study is to examine the effects of aerobic exercise on lipreading ability in young adults. First, a pilot study was conducted to test the 90 videos to ensure that participants could correctly identify words from the silent videos. Next, participants were recruited from the LMU Psychology Department's Participant Pool. Using a within-subjects design, each participant completed both an exercise condition and a control condition. In the exercise condition, participants cycled for 30 minutes and then completed a lipreading task in which they viewed 90 silent videos and identified the word being mouthed. In the control condition, participants watched a 30-minute cycling video and then completed the same task. The number of words correctly identified was recorded. We predict that the exercise group will identify a higher percentage of words compared to the control group. If our hypothesis is supported, these findings will replicate and extend prior work, demonstrating that acute exercise can improve perceptual ability. More broadly, this line of research may promote a more holistic approach to health that emphasizes the benefits of early preventative lifestyle strategies.

Effects of Micro-Droplet Cooling on Electronic Surfaces

Joe Alapat, Matthew Schoenbachler, Donnie Sarabia, Anthony Tobar, Bryce Dryden, Joaquín Olavarria, Andrei Dudikoff

The purpose of this research is to explore the feasibility of microdroplet spray as a cooling method for electronic components. At the individual component level, conventional electronic cooling methods such as fan airflow and liquid heat sinks may not be as effective as directly spraying components with microscopic amounts of liquid. In the microdroplet cooling process, the heat from an electronic component surface is transferred into sprayed

microdroplets that will in turn evaporate to keep the component's temperature low and at a more effective operating level. The effectiveness of microdroplets at transferring heat is a prospective area of interest due to the increasing amounts of processing power that computer processing units are able to handle and the resulting heat they generate. Research in this field has explored the variety of factors that manipulate microdroplets, such as surface tension and release patterns of a piezoelectric droplet generator. Previous sessions of research on this project have explored how to generate microdroplets 90-120 micrometers in size and built an experimental testing setup for recording and analyzing the cooling effectiveness of these single microdroplets. This session has continued the previous work by focusing on two new challenges: Analyzing the factors that manipulate a single microdroplet and building an experimental setup that can test how a microdroplet spray can be manipulated to best cool a heated surface. New equipment for experiments, data acquisition devices and software had to be learned and helped students develop skills on various experimental procedures.

Effects of Psilocin on Muscle Movements of the Developing Embryo

Charmaine Wong

Introduction: Serotonin, a neurotransmitter, regulates multiple functions in the adult, including mood, bone mass, and muscle control. Since dysregulation of serotonin can lead to psychological conditions, the Food and Drug Administration has recently designated psilocybin, an agonist of serotonin receptors 1A, 2A, and 2C, as "breakthrough therapy" for treatment-resistant depression in adults. Given the increased possibility of embryos being exposed to psilocybin, it is crucial to study the effects of this drug on embryogenesis. Homeostatic levels of muscle movement and serotonin signaling are required for joint structure. For example, overactivation of the serotonergic system can lead to uncontrolled muscle movements in adults, as studied in both mice and humans. Moreover, during embryogenesis, the lack of muscle movement can cause joint malformation. Therefore, we are investigating the potential developmental effects of psilocin, the active metabolite of psilocybin, on muscle movement, using chicken embryos as a model system. Methods: Chicken embryos were treated with 100μM psilocin after one day of development. Movies of experimental and control eggs were collected on Day 10 through iPhone recordings after eggs were opened. A combination of Tracker and FIJI software are then used to quantify the displacement and velocity of forelimb movements. Preliminary Results: Embryos treated with 100uM psilocin exhibit short bursts of jerky movements. In contrast, control embryos display constant, slower forelimb movements. Future Directions: These findings show the possibility that psilocin, and therefore serotonin, influences the movements of the embryo. Our next steps are to increase sample size and refine the data analysis protocol.

The Effects of Yoga on Multisensory Perception

Sophia Chavez

Yoga has become a common practice for physical and mental health interventions, especially in patient populations and the elderly who have balance and mobility concerns. To date, there have been few studies concerning the sensory effects of yoga on college students' sensory re-weighting and no study on the multisensory effects after yoga training. For this study, a pre-and post-test will be conducted on students at the

start of a beginners' yoga class and at the end of the class following 10–12 weeks of consistent yoga practice 2 hours a week. To measure changes to balance, students will be subjected to balance tests using a Wii Balance Board with eyes open and closed on a firm or foam surface and practicing specific yoga poses which will determine postural sway and use of vestibular cues. Additionally, the Rod and Frame test conducted using a virtual reality headset will determine visual field dependence (i.e. the relative reliance on visual cues). In order to establish a control group, students will be recruited from the Psychology Subject Pool to establish if any changes occur over a semester in those who do not attend regular yoga classes. By comparing the results from before and after taking the beginner yoga class, we will determine if yoga has the ability to improve the balance of college students and train the body to use visual, vestibular, and proprioceptive cues more effectively.

Enabling Offline Scheduling for Scientific Workflows
Nicholas Laus

High-performance computing frameworks like Parsl have revolutionized scientific research by simplifying how data-intensive code runs across massive computer networks. Parsl typically uses a dynamic "online" scheduling model: as soon as a computer node becomes idle, it claims the next available task. This approach is excellent for speed; however, it encounters limits with complex, interdependent workflows. In these cases, Parsl's "first-available" strategy ignores data locality, meaning it might assign two related tasks to distant computers, wasting valuable time transferring data across the network. The primary contribution of this work is a set of extensions to SAGA and Parsl that allow the two frameworks to be used together, giving scientists who already write their applications in Parsl access to SAGA's library of offline scheduling algorithms. Rather than rewriting Parsl's core engine, these extensions introduce a custom layer that constructs a full Task Graph (the workflow logic) and Network Graph (the physical hardware) prior to execution. A selected scheduling algorithm from SAGA, such as HEFT (Heterogeneous Earliest Finish Time), is then applied to generate an optimized execution plan, which directs Parsl to execute tasks on specific nodes accordingly. This integration provides researchers with a seamless way to toggle between Parsl's standard dynamic execution and SAGA's optimized static scheduling, ensuring high efficiency on complex hardware without sacrificing the ease of use that Parsl already provides.

Endangered Language Translation Evaluations
Diego Cuadros

Modern neural machine translation (NMT) has substantially advanced language technologies, achieving high accuracy and fluent output across many high-resource languages. When trained on large-scale parallel corpora, NMT models can capture fine-grained grammatical, syntactic, and semantic patterns that were previously difficult to model. However, this data dependence limits performance and applicability in low-resource settings, including Owens Valley Paiute (ISO 639-3: mnr), an Indigenous language of Eastern California with limited digitized and annotated resources. The Kubishi Research Group addresses this gap by leveraging recent progress in general-purpose large language models to develop translation methods that remain effective under severe data scarcity, with the broader aim of supporting documentation and revitalization of critically endangered languages. We evaluate a set of translation approaches that combine machine learning with human-

inspired translation strategies, incorporating tools such as dictionaries, explicit sentence-structure rules, and similar examples. Among the evaluated systems, a Retrieval-Augmented Generation (RAG) translator offers strong potential for extensibility to additional endangered languages but currently underperforms relative to alternative methods due primarily to systematic grammatical errors. We outline directions to improve grammatical fidelity, including expanding curated examples and fine-tuning with complementary translator outputs. More accurate low-resource translation systems could meaningfully enhance endangered language preservation by providing practical tools for linguists, educators, and community learners.

Endorser Perception in Modern Marketing: Celebrity vs. Social Media Influencer Endorsements
Mikaela Huarcaya

While research on celebrity endorsements is extensive, studies on social media influencer (SMI) endorsements have only recently begun to expand, and direct comparisons between the two remain limited. In an environment where SMIs are becoming increasingly mainstream and brands continue to invest more heavily in them; it is essential to understand how these two types of endorsements differ and how they perform relative to one another. This study compares both types of endorsements based on three models that explain consumer perception as well as the potential risks associated with each endorsement. The study draws on existing literature as well as a newly conducted survey of current college students to understand how this population perceives these two forms of endorsements and how these perceptions align with or diverge from prior research. Ultimately, the findings of this study can inform managerial decisions regarding whether a brand should employ a celebrity or a social media influencer when seeking to promote a product.

ESMFLUC: A Deep Learning Model for Predicting Protein Sequence-Encoded Flexibility Using Evolutionary Scale Modeling
Ngoc Kim Ngan Tran

Proteins are dynamic molecular machines whose functionality emerges critically from their intrinsic conformational flexibility. A central challenge in structural biology remains identifying how a protein sequence encodes this flexibility, as it is important to decipher the connection between sequence, dynamics, and biological function. While recent advances in deep learning and protein language models have significantly improved structural prediction, predicting sequence-encoded dynamics remains challenging. In this work, we introduce ESMFLUC, a biLSTM model trained on molecular dynamics simulation data, utilizing embeddings from the Evolutionary Scale Modeling (ESM) architecture to predict local flexibility directly from protein sequences. Using fluctuation data derived from extensive molecular dynamics simulations, ESMFLUC accurately identifies flexible amino acids without computationally expensive simulations while providing interpretability via attention maps. The model notably highlights distal flexible regions relevant for allosteric regulation and drug targeting. Our approach demonstrates substantial improvements over traditional flexibility proxies, offering researchers a computationally efficient method to reveal critical functional sites beyond active or binding regions.

The Essence of Existential Humility in Spanish Surrealist Paintings

Solana Blakely

Existential humility, a concept explored by some contemporary philosophers, describes human reactions to a great, valuable, external reality. This interdisciplinary research project explores the presence of existential humility in certain Spanish Surrealist paintings – entities born from a movement characterized by questioning common conceptions of reality. Viewing selected works by Spanish Surrealist painters through the lens of existential humility reveals the common themes of human finitude, moral failings, and the transcendence of the natural world. Three paintings displayed at the Museo Reina Sofia in Madrid were analyzed firsthand for these themes: Pablo Picasso's Guernica, Salvador Dalí's Millet's Architectonic Angelus, and Maruja Mallo's Den of Fossils. Historical and artistic understandings of each piece were formed by compiling timelines of their creation process and analyzing their formal and symbolic elements using the knowledge of a local art history expert. Evident in each piece was the juxtaposition of human limitations with a greater reality. This research uniquely connects Spanish Surrealist painting to philosophical scholarship on virtues, while adding to existing dialogue about humility's central characteristics. It demonstrates how art can be used to further philosophical research, and how philosophy in turn may clarify the significance of art.

The Evolving Relationship Between Christian Worship and Artistic Programs in Roman Churches

Elizabeth Parr

Rome was a hub of the Roman Empire, the site of two foundational apostles' martyrdoms, and, eventually, the center of the papacy. As a nucleus of the developing Christian liturgy, the city played a formative role in the contemporary practices of Christians. From the Constantinian era onwards, the Christian religion became more structured and gradually more standardized, as is evident in the practice of the eucharist, baptism, and the hierarchy of the church. Acting as the final research project in our Summer 2025 study abroad class, Christian Faith and Visual Culture in Rome, this essay focuses on how Christian decorative programs reflect the priorities of Christian worship in different art historical periods—evolving from modest and inconspicuous representations in the Early Christian period, to sparkling mosaics in the Middle Ages, to extravagant frescoes in the Renaissance and Baroque movements. This project examines a range of artistic decor—including baptismal fonts, architectural plans, mosaics, and frescoes—in terms of three themes: the paschal mystery and the desire to emulate Christ's way of life, the turning away from sin towards salvation, and the Final Judgement of one's eternal fate. Though this paper only scratches the surface of Roman history, it reflects upon the manner in which artistic programs demonstrate the ongoing desire of Christians to conform their lives to Christ.

Examining Potential Correlations Between Identity as a Student of Color & Depression

Asha Manthena, Corynn Broadwater, Katelyn Stouffer, Rodrigo Bos, Marissa Momary, David J. Hardy

Prior research has shown that marginalized group membership is associated with higher levels of depression in college students (Worthen et al., 2021). This preliminary analysis investigates if the African American, Asian American, and Hispanic/Latino student demographic group at a U.S. university are more likely to experience

elevated levels of depression and cultural disconnection than their white peers. This research was prompted by concern about students of color's potential alienation and sense of belonging within predominantly white institutions. We examined this issue by having 117 college students, 44 of which are of White/European descent, and 73 students of color (African American, Asian American, or Hispanic/Latino) complete a self-reported measure, the Beck Depression Inventory-II (BDI-2), with higher scores indicating increased severity of depressive symptoms. While results were not statistically significant ($p = .214$), students of color reported higher mean scores ($M = 12.36$) compared to white students ($M = 10.02$). A similar pattern occurred when we had 114 college students of both White/European descent ($n = 44$) and students of color ($n = 70$) complete another self-reported measure, the Patient Health Questionnaire-9 (PHQ-9), in which higher scores also indicate increased severity of depressive symptoms. The White/European students had a mean of 6.36 while students of color had a mean of 7.59, although the data was also not significant ($p = .265$). Notably, African American students reported the highest depressive symptoms across both measures (BDI $M = 14.79$; PHQ-9 $M = 9.00$), in contrast to their White/European peers who reported the lowest of all ethnic groups (BDI $M = 10.02$; PHQ-9 $M = 6.36$). These findings warrant future research to explore the differences in depressive symptoms between specific minority groups. To explore cultural connection as a possibility for this trend, although not significant, we had 60 college students, 30 of White/European descent and 30 students of color, score themselves on six statements from the Abbreviated Multidimensional Acculturation Scale (AMAS), with higher scores indicating more comfort and connection with mainstream American lifestyle. Although not significant ($p = .892$), there was a faintly higher mean for White/European students ($M = 17.9$, $SD = 4.91$) than students of color ($M = 17.73$, $SD = 4.59$). Although results did not reach statistical significance, the observed trends suggest that being of a minority at a U.S. university can potentially influence depressive symptoms and a sense of cultural belonging. The elevated scores among African American participants suggests future research should delve into intersections of individual ethnicities and other potential contributing factors, such as socioeconomic status or health issues, on student well-being.

Examining Trophic Effects Using Fluctuating Asymmetry: Comparing Rodents and Coyotes

Natalie Hedding

Vertebrate growth and development have been shown to be negatively affected by environmental pollutants, which can cause deviations from bilateral symmetry which can persist into adulthood. These deviations can be determined by a measure called fluctuating asymmetry (FA), which shows a relative amount of individual asymmetry, with more asymmetry associated with poorer health and a greater exposure to pollutants. In addition, given that pollutants can be concentrated, there may also be a food chain effect. Previous research showed higher levels of FA in a more omnivorous rodent Onychomys torridus (grasshopper mouse), near Owen's Lake, CA (a site with dangerous levels of heavy metals) compared to those in a less polluted location and also compared to a more herbivorous rodent, Neotoma lepida (desert woodrat) outside of Owen's Lake. To better understand the effects of developmental stressors and different trophic levels, a more carnivorous species, Canis latrans (coyote) skulls were measured to determine FA from more and less polluted locations. 17 landmarks shared between over 100 rodent skulls of the two species of rodent previously measured, and 95 coyote skulls from more and less polluted areas were compared. We expect that the data will support our hypothesis and

show less FA in less polluted areas, and more FA in more carnivorous species, which are exposed to greater levels of pollutants.

Excited and Ground State pKa Values of Methoxyisoquinolines
Spencer Heaton, Ryan Iglesias

Abstract. In this work, we investigate the ground and excited state basicities of a series of methoxy-substituted isoquinoline molecules. Methoxyisoquinolines are used as organic building blocks in the synthesis of novel pharmaceutical drug candidates with anti-microbial, fungal, and neurodegenerative applications and are hypothesized to act as photobases, molecules which become more basic after being exposed to UV light. Previous work from the primary literature suggests that there is a strong relationship between a photobase's substituent position and its ground and excited state basicity. In this work, the ground state pKa of 10 different methoxyisoquinolines were experimentally determined using UV-Vis titrations and their excited state pKa values were estimated using UV-Vis and fluorescence spectroscopies. Our preliminary data indicates that the position of the methoxy substituent affects these attributes in an extreme manner – considerably more so than expected – and suggests strong candidates for future photochemical applications. We hope that these results will help in the design of green photochemical syntheses that are more controllable and less wasteful compared to current methods for base-catalyzed organic reactions.

Excited-State Basicity of Quinoline Photobases in Aprotic Solvents via Forster Cycle Analysis
Natalie Karapedian, Catherine Hsiao

Photobases are molecules that become much stronger bases when hit with UV light. Their excited state basicity is typically quantified via Forster cycle analysis using data from UV-Vis spectroscopy and fluorescence spectroscopy. Many interesting synthetic applications of photobases require their use in aprotic solvents. In this work, we investigate whether the Forster cycle can be accurately applied to photobases in aprotic solvents to predict their excited state acid–base behavior. We first applied the well-established Forster cycle analysis, typically carried out in water, to quinoline-based photobases in solvents such as acetonitrile. We then used fluorescence spectroscopy to determine whether the calculated values could reasonably predict the deprotonation of acidic alcohols in those solvents. The results of this work could provide a useful framework for predicting pKa values in aprotic solvents and broaden the understanding of photobase behavior.

Exploring Connections Between Mathematics Assessments and Students' Mathematics Identities
Ashley Smith

This research aims to further investigate connections between mathematics assessment practices in secondary education on the mathematics identities of first- and second-year undergraduate mathematics majors and minors. Recent work has pointed to the importance of supporting students' mathematics identity development in K-16 education, a construct which encompasses three dimensions: their perceptions of competence in mathematics, interest in and value of mathematics, and the extent to which they feel recognized by others within

mathematical contexts. Strong mathematics identities relate to greater academic persistence, achievement, and STEM career choices, and previous work has hinted at a link between assessment practices and mathematics identity development, which prompts us to ask the research question: In what ways do mathematics assessment practices in secondary education settings impact mathematics identity? To investigate this, we conducted three semi-structured interviews about students' experiences in secondary mathematics and analyzed them using a two-tiered thematic analysis grounded in the theoretical framework of figured worlds to understand how assessment experiences shaped students' mathematics identities as current undergraduate students. Findings revealed a strong connection between the dimension of competence and traditional, exam-based assessments, while links between assessment practices and interest, value, and recognition were comparatively weak. These findings offer insight into how the heavy reliance on exams in secondary mathematics classrooms can disproportionately shape students' mathematics identities through competence-related messaging. If instructors aim to enhance all dimensions of students' mathematics identity, these results highlight the need for more diversified assessment practices that support the full range of students' mathematics identity development.

Exploring Youth Wellness Through Social Media: A Cross-Platform Content Analysis

Cameron Scolari, Uche Obi-iwuagwu, Owen Dewing, Kate Grahame, Cameron Hajaliloo, Raihana Zahra

As social media continues to shape adolescent life, understanding its influence on youth mental wellness and how it is discussed across platforms is crucial. This research explores wellness-related content across Reddit, TikTok, and YouTube Shorts, three platforms which are very popular among younger users and shape how youth engage with health, identity, and emotion in digital spaces. Motivated by rising concerns around social media's link to mental health challenges, we analyzed over 21,000 posts across these platforms to identify thematic patterns and emotional tones within wellness-related content. We used BERTopic to identify distinct discussion topics and applied hierarchical clustering to assess semantic relationships among them. We conducted sentiment analysis with VADER to quantify the emotional valence of each post and enable cross-platform comparison. Using visualization tools such as similarity matrices, UMAP plots, and hierarchical dendrograms, we show that youth wellness is not discussed as a set of isolated issues rather it often overlaps across physical, emotional, and sociopolitical aspects. Diet and body image conversations clustered closely with mental health and self-esteem topics, while conspiracy, cultural, and political narratives also appeared within wellness discourse, particularly on Reddit. Sentiment analysis showed that YouTube and TikTok posts tend to be more emotionally positive or neutral, while Reddit showed greater variance, including more negatively charged discussions. These findings highlight the complexity of the concerns surrounding youth wellness. This study also contributes to a growing body of research aimed at emphasizing the need for fostering constructive and supportive discourse around health and identity online.

Fear of Heights, Eye Gaze, and Vertical Estimation Bias in VR

Vincent Chacon

Vertical surfaces are often overestimated by an average of 50% when viewed from the top, while horizontal surfaces are estimated fairly accurately (Jackson, 2008). Previous research shows that there is a correlation

between fear of heights with vertical distance overestimation (Jackson, 2009; Willey and Jackson, 2014). We propose a study that tests the directional relationships between fear of heights, eye gaze, and distance estimation by manipulating height exposure in virtual reality. We hypothesize that height exposure will decrease fear of heights and alter eye gaze patterns but will not affect participant overestimation of vertical surfaces. Thus, the original overestimation of the vertical surface may lead to increased fear, but the perception of distance is not dependent on emotional state. We present pilot data that replicates the correlations between vertical overestimation and fear of heights. Our proposed study could help improve our understanding of the relationships between eye gaze and broaden our understanding around the origins of the fear of heights.

Feelings on the Field: The Relationship Between Emotions and Sports Performance
Summer Alexander

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

Foliar Water Uptake and Leaf Characteristics for Immature Versus Mature Angiosperms
Hayley Katz

Both gymnosperms (non-flowering plants) and angiosperms (flowering plants) show foliar water uptake (FWU), the absorption of water directly through the leaf surfaces. Previous research on FWU demonstrates that for gymnosperms older, mature leaves exhibit greater water uptake than immature leaves. In contrast, FWU in angiosperms by leaves at different stages of development is less researched. In this study leaf characteristics and FWU were determined for immature versus mature leaves of the angiosperms Ficus pumila, Limonium perezii, Phlomis fructicosa, Raphiolepis indica, and Ulmus parvifolia. Analysis of RGB values revealed higher red values for the immature leaves consistent with their red flushing. Leaf area differed among species, with immature

leaves ranging from <1.0 cm^2 in U. parvifolia to >12 cm^2 in F. pumila; mature leaf areas were at least twice that of red leaves across species. Stomatal densities decreased with leaf expansion. Stomatal distribution also differed between species with some species being amphistomatous e.g. L. perezii, whereas others e.g. R. indica had no stomata on the adaxial surface and highest stomatal densities on the abaxial surface. Hydrophobicity patterns differed by species: R. indica exhibited similar hydrophobicity in both developmental stages, whereas immature leaves of F. pumila were more hydrophobic than mature leaves, and immature leaves of L. perezii and U. parvifolia showed greater hydropholicity. Ongoing foliar water uptake measurements suggest greater water absorption in immature than mature leaves for most of these angiosperm species.

From Expression to Empowerment: Youth Artivism and Positive Youth Development

Damian Waller

This evaluation project examines how artivism (i.e., programming that combines "art" and "activism" through artistic expression and cultural storytelling to create social change) supports positive youth development (PYD) among Black and Latinx high school students in an under-resourced community in Los Angeles. The project explores the extent to which Community Coalition's Youth Arts Council (YAC), an intensive after-school arts-based program where youth receive mentorship from local artists and community leaders to curate, design, and lead arts and culture initiatives rooted in their lived experiences and community priorities, strengthens youth self-awareness, confidence, civic engagement, and community pride. Artivism is examined as a strengths-based approach that promotes protective factors associated with youth well-being and substance use prevention. Prior research on PYD and youth participatory practices suggests that opportunities for youth voice, critical awareness, and collective engagement foster confidence, positive decision-making, and a sense of responsibility to one's community (e.g., Lerner et al., 2005; Ginwright, 2018; Catalano et al., 2012). This project investigates how youth-led artivism supports these developmental processes. The sample includes YAC members (n = 12) who completed a self-report survey administered in person at Community Coalition. Measures assessed academic, vocational, emotional, relational, and self-awareness outcomes aligned with PYD domains, as well as experiences of youth voice, cultural affirmation, mentorship, and community connection. Anticipated findings are that engagement in youth-led artivism will be associated with increased self-awareness, confidence, civic engagement, and community pride. Overall, this study highlights youth-led artivism as a culturally grounded approach to youth empowerment and community well-being.

Fun in the Sun and Policing: The Influence of Relational Policing on Police Clearance Rates

Christjin Bell

The Gang Reduction and Youth Development (GRYD) program is a long-standing initiative housed within the City of Los Angeles Mayor's Office that aims to reduce group/gang related crime rates and gang membership in communities with a high degree of gang activity and violence. GRYD collaborates with various community organizations around LA to employ community members with lived experiences that give them credibility with their family, clients, or those who might be involved with violence. A critical component of the GRYD ecosystem is the Summer Night Lights (SNL) program, which offers free meals, sports and fitness, activities, and connections

to resources at public parks across the city and the local community, especially those who are the closest to violence. A key strategic partner in SNL is the Los Angeles Police Department (LAPD), which supports on-site safety, participates in community engagement at SNL events, and provides referrals to GRYD prevention programs. Because LAPD plays a dual role in both public safety and community relationship-building, this study examines whether SNL is associated with indicators of relational policing, operationalized through police clearance rates. Previous research suggests that clearance rates are a clear and distinct indicator of police effectiveness within a relational policing framework, an approach emphasizing compassion, trust, and authentic connections, while managing public safety risks (Lavoie et al., 2022). Using Los Angeles Police Department (LAPD) crime data from 2010 to 2023, we assess whether neighborhoods with SNL programming at nearby parks exhibit higher clearance rates for overall and violent (defined by modus operandi codes) crimes, relative to comparable non-SNL neighborhoods. We hypothesize that neighborhoods served by SNL will demonstrate higher clearance rates for both overall and violent crimes than non-SNL neighborhoods, consistent with stronger relational policing in SNL areas. We estimate cross-sectional multilevel regression models to examine the association between SNL exposure and clearance outcomes, adjusting for individual-level victim characteristics and neighborhood-level contextual factors drawn from USC's Neighborhood Data for Social Change that might influence the model. Crime incidents are nested within parks and years to account for spatial and temporal clustering and to situate SNL's relationship to relational policing within the broader neighborhood context.

Generate This: A Practical Exploration into the AI Film Making Process and Systematic Teaching in the Indie Film World

Max Page, Austin Wade, Gia Anelle

Over the summer, our team completed a six-week, hands-on research project exploring how accessible AI tools fit into low-budget independent filmmaking, and what it takes to teach those tools effectively. Rather than treating AI as a theoretical disruption, we tested it inside a real production pipeline by writing, developing, producing, editing, and mastering an AI-based proof-of-concept short film while documenting the experience from both "teacher" and "learner" perspectives. Our work focused on two core questions: (1) how AI-driven filmmaking tools could be taught to users with different starting skill levels, and (2) what the lived learning curve looked like for participants unfamiliar with specific tools, including what slowed progress and what accelerated creative results. The project was structured into three phases, each led by a team member with relevant expertise. In Weeks 1–2, Gia Anelle led AI scripting instruction using Plot Dot and ChatGPT as Austin Wade and Max Page generated story concepts, outlines, and a detailed audio-visual script through iterative prompting and revision. In Weeks 3–4, Max mentored Gia and Austin in visual development using MidJourney and Sora, translating the script into visual references and generating video footage. In Weeks 5–6, Austin instructed Gia and Max in AI-supported editing workflows within DaVinci Resolve, culminating in a final edit and mastering pass. We gathered qualitative data through daily reflective journals, weekly group discussions, and process documentation (prompts, revisions, breakthroughs, and bottlenecks). We then analyzed these materials for patterns in teaching effectiveness, learner engagement, common challenges, and the relationship between tool proficiency and creative outcomes. The project concluded with a finished mastered short film and a research presentation outlining practical takeaways for indie filmmakers and educators integrating AI into their workflows.

Generation Z Women's Experiences with Gender Dynamics in the Sports Industry
Lauren Kim

The lack of female representation in the sports industry poses an issue for future generations of women interested in or wanting to enter this field of work. This study explored how Generation Z women who currently work in the sports industry experience gender dynamics. Through semi-structured interviews, five young women were asked about their initial impressions of the industry, their values as a Gen Z female, and their assimilation and mentorship experience in their career. Findings revealed that women, overall, enjoyed their experience working in the industry despite facing issues with gender dynamics, job competition, and lack of representation and visibility. While Generation Z promotes inclusivity, low visibility and representation, high job competition, and continued male dominance poses challenges to the actual implementation of these aspirations. I concluded that females working in this industry are seemingly unaware of the false sense of change, how job competition may be forcing complacency, and their misunderstanding of meaningful mentorship, enabling the cyclical male dominance and mistreatment. Gen Z's promotion and awareness of transformed ideals is not enough. The sports industry must be reframed to be more equitable and welcoming to women.

Generational Elders as Stabilizing Forces for Transition-Aged Black Males in a Post-Covid-Context
Sean Bethune II

The onset of the COVID-19 pandemic had deleterious impacts on the human condition. Little is understood though about the long-term COVID effects on youth, who experienced isolation, instability, and dampening of resilience. Further, little is known about the transformation of the social systems of support and relational ties that typically would have buffered youth - Black youth in particular - from these negative consequences of COVID. This study explores the role of relational ties to generational elders - elders who are two or more generations removed - for young Black men (aged 18 to 24 years old) who were in adolescence during the onset of COVID-19 and who are now in emerging adulthood. Through a review of literature and emergent theory, I examine the characteristics and contributions of generational elders, who play a role in providing stability, support, and wisdom to transition-aged Black males. Generational elders have a significant impact on transitioning aged Black males as wisdom sharers, as well as stability and support providers, and they convey self-value, personal accountability, and rescripting narratives. Overall, the relationship results in the transfer of knowledge, skills, and attributes. Generational elders are important in their role of being a guidance figure in a nonprofessional context, bringing ongoing support deeper than a professional relationship.

The Gothic Female Body: Fairy Tales Meet Gynaehorror in "The Husband Stitch" and The Bloody Chamber
Sadie Nanson

Male European authors began to transcribe fairy tales around the early 17th century, altering them to moralize readers and reinforce social norms despite the fact that women originally crafted these stories to circulate covert or taboo information under the guise of entertainment. Centuries later, authors including Angela Carter and Carmen María Machado reimagine fairy tales to assert women's authorship of the ancient stories and reframe

deviant women as tragic heroes rather than condemned damsels. In this paper, I demonstrate how in both The Bloody Chamber and "The Husband Stitch," Carter and Machado radically reclaim the age-old tradition of female oral storytelling using elements of the female gothic and gynaehorror to explore the female body as a site of resistance and oppression. These authors present bodily subjugation through both an exploration of pregnancy and sexuality as well as radical experimentation with style and form, ultimately bending genre and convention to convey the female experience. I argue that the parallels between the two authors – though products of different generations, national origins, races, and sexualities – expose how the incorporation of gothic, horror, and fairy tale elements enables the warping of reality and transgression of the normative boundaries of space, time, perspective, and knowing. Additionally, I expose how both authors articulate the inarticulable of female experiences through the use of magic, ghosts, werewolves, and witches, making the unreal the most real of all.

Greater Subjective Workload During Executive Functioning Tasks is Associated with Elevated ADHD Symptoms

Katelyn N. Stouffer, Rodrigo R. Bos, Marissa L. Momary, Kiralise L. Nygaard, Hannah C. Van Den Thillart, David J. Hardy

ADHD is often associated with executive functioning difficulties, yet objective neuropsychological tests may fail to capture the cognitive strain reported by individuals with elevated symptoms. This preliminary analysis examined whether ADHD symptom severity predicts subjective workload during a cognitive flexibility task. College students (n = 13) completed Color Trails 1 (CT1), a simple visual scanning task, followed by Color Trails 2 (CT2), which requires alternating between color sequences and introduces demands of divided attention. After each task, participants completed the NASA Task Load Index (NASA-TLX), a multidimensional measure of subjective workload. ADHD symptoms were assessed using the total scores for Parts A and B of the Adult ADHD Self-Report Scale (ASRS-v1.1). ADHD symptoms were not associated with NASA-TLX ratings during CT1, suggesting that simple visual scanning did not predict increased workload. In contrast, ADHD symptoms were strongly associated with greater frustration ($r = .64$, $p < .05$) and poorer performance ratings ($r = .61$, $p < .05$) during CT2, where higher scores indicate worse perceived performance. Temporal demand showed a similar pattern and approached significance ($r = .53$, $p = .062$). ADHD symptoms were unrelated to objective performance outcomes, including completion time or error rates on either task. These findings indicate a dissociation between objective performance and subjective experience in individuals with elevated ADHD symptoms. Increased cognitive flexibility demands were associated with heightened frustration and negative performance appraisal, despite objective performance remaining intact. This pattern aligns with research on low frustration tolerance in ADHD and underscores the importance of subjective workload measures in executive functioning research.

Greenlights to Cancellations: The Evolution of TV and Black Media
Walter Bridgewater IV

Over the past decade, the entertainment industry has undergone a major shift. Streaming platforms have overtaken broadcast and cable networks, leading to a wave of series cancellations. A reoccurring theme emerged: Black-led television shows are cancelled at disproportionately high rates—even when they perform well. This paper argues that Hollywood's flawed definition of 'success' fails to fully value Black creators. I examine this across three areas: (1) the shift from cable to streaming, (2) the financial pressure behind the WGA and SAG-AFTRA strikes, (3) and the industry's inconsistent standards for success that leave Black stories behind. Finally, I offer potential solutions—focusing on how Black creators can create, own, and distribute content while expanding into underrepresented genres.

Healthcare Applications of Nanomotors: Unlocking New Capabilities
Ashley Hurjak, Daniel Gostanian

The development of nanomotor-based drug delivery systems represents a promising advancement in precision medicine by enabling active transport, targeted localization, and controlled therapeutic release beyond the capabilities of passive nanocarriers. This work reports the synthesis, structural optimization, and preliminary functional evaluation of gold-based nanomotor platforms fabricated using sol-gel techniques for targeted drug delivery applications. Macro-scale nanomotor geometries, including spherical rod-shaped and helical architectures, were first designed and fabricated using high-resolution three-dimensional printing to evaluate shape-dependent propulsion behavior and navigational stability in liquid environments. These results informed subsequent nanoscale fabrication using modified Stober and sol-gel methods to produce silica, zinc oxide, and iron oxide nanostructures with tunable size, surface chemistry, and biocompatibility. Magnetically responsive components were incorporated to enable external actuation, and a proof-of-concept wearable electromagnetic belt system was developed to demonstrate non-invasive directional control of nanomotor motion in tissue-mimicking phantoms. Preliminary in vitro studies demonstrated controlled particle migration under an applied magnetic field, supporting the feasibility of externally guided nanomotor delivery. Collectively, this work establishes a scalable shape-optimized nanomotor platform and introduces an integrated external control strategy that bridges macro-scale engineering design with nanoscale biomedical application and advances the development of self-administered targeted drug delivery systems.

HealthCheck: An Automated web Platform for Assessing Women's Health Claims on Social Media
Raihana Zahra

Women's health information on social media is increasingly promoting misleading and potentially harmful reproductive content posing risks to patient health and public health literacy. While traditional fact checking tools exist to mitigate these risks, there is a need for automated tools to identify and provide immediate access to verified medical evidence and peer-reviewed research papers. This study investigates the effectiveness of large language models (LLMs) in detecting and interpreting women's health related posts on platforms like

Reddit and X/Twitter. A research-focused web tool was developed using a FastAPI backend and React frontend, implementing a Retrieval-Augmented Generation (RAG) pipeline. This system utilizes LLMs served through Ollama to classify social media claims and leverages the Tavily Search API to utilize current, real-time search information and fetch verified scientific literature from databases like PubMed and bioRxiv. The application is influenced by previous studies that have shown potential in interactive tools to verify factual accuracy of media content by fetching evidence from external databases. To validate the approach, benchmarking experiments are also conducted to evaluate model performances of various LLM models, including Mistral and Qwen. The models are evaluated based on Accuracy, Precision, Recall, and F1-score to determine their reliability in classifying health categories. By examining the effectiveness of different models towards women's health, this research aims to contribute to the broader field of wellness technology by providing a framework for misinformation detection, fostering a more informed health decision-making process for users in online spaces.

Heavy Metal Bioaccumulation in Marine Mussels Following the 2025 Pacific Palisades Wildfires
Sofia Enriquez, Olivia Schafer

Mytilus californianus and M. galloprovincialis are bivalve molluscs that enhance biodiversity and the availability of resources for species in their respective environments. They bioaccumulate pollutants within their tissues making them effective indicators of aquatic contamination. Wildfires are a significant driver of heavy metal mobilization, compounding existing contamination from industrial and urban sources. The January 2025 wildfires in the Pacific Palisades (PP) region generated large quantities of ash and burned debris potentially containing metals such as lead (Pb), cadmium (Cd), lithium (Li), arsenic (As), chromium (Cr), iron (Fe), nickel (Ni), copper (Cu), and beryllium (Be) derived from homes, cars, and infrastructure. In this study, heavy metal concentrations within M. californianus and M. galloprovincialis from three different sites: Ballona Creek (BC), Marina Del Rey (MDR) and Will Rodgers Beach in the PP were measured. It was hypothesized that mussels from PP would exhibit elevated levels of metal concentrations as a result of debris and wildfire runoff entering surrounding waters. Mussels were collected from each site and tissue was acid-digested and analyzed for metals using inductively coupled plasma mass spectrometry (ICP-MS). Results revealed statistically significant differences among all three sites for Li, Fe, Ni, Cu, Zn, Cd, and Pb. Mussels from PP exhibited heavy metal concentrations that were less than or comparable to levels at BC and MDR. While these concentrations were lower than anticipated, more studies are planned to assess temporal variability in heavy metal concentrations with comparisons to metal concentrations measured in coastal mussel populations following wildfire events.

Herpes: A Cultural Biography
Sam Qualls

My research for the Summer Undergraduate Research Program took place in Dr. Mairead Sullivan's Viral Imaginaries Lab, where I focused on the cultural history of the Herpes Simplex Virus (HSV). Specifically, I examined how journalistic and advertising materials helped shape the social narrative surrounding HSV in the 1980s and beyond. I compiled a corpus of 54 documents, mostly news articles and print ads, pulled from academic databases like the U.S. Major Dailies and The Kinsey Institute. I catalogued each using metadata such

as title, date, media type, author, and others to identify patterns over time. I then used computational humanities methods including sentiment analysis, named entity recognition, and topic modeling through coding in Python via Jupyter Notebook to analyze and visualize trends in emotional tone and language use. What I found was a clear pattern; across different media types, the discourse around herpes was largely fear-driven, gendered, and stigmatizing. Even academic sources contributed to this framing, though with slightly different affect. This research contributes to Dr. Sullivan's upcoming book, Herpes: A Cultural Biography, and adds to our understanding of how stigma around STDs is formed and sustained. More broadly, it sheds light on how media can influence public health conversations which is a topic still deeply relevant today.

Heteronormative Deniability: The Suppression, Erasure, and Dehumanization of WWII Korean "Comfort Women" and Enslaved Black Women

Clarke Hamilton

This project visually explores the interconnected histories of Korean "comfort women" and enslaved Black women subjected to state-sanctioned sexual violence and denied humanity. Each piece engages the historical context and relationship between sexual enslavement of Korean "comfort women" under the Imperial Japanese Armed Forces during WWII and the sexual exploitation and human trafficking of Black bodies under chattel slavery in the United States of America. These narratives are not isolated but instead expose the cyclical exertion of heteronormative suppression serving as a method of sustaining patriarchal power. Utilizing symbolic metaphors — the body, cowrie shell, quilt, auction box, and clay — I artistically respond to the denied culpability of the Japanese government following a lawsuit in 2021 and the U.S.'s continuous downplay of generational trauma and exploitation Black women have experienced for over 400 years. The research historically contextualizes the women's interconnected experiences of state-sanctioned violence and addresses how it was used to maintain economic and social stability through the quieting of a collective history. Ultimately, my ceramic sculptures visually and physically challenge these oppressive institutions by taking space to bring attention to the definitive humanity of Korean "comfort women" and enslaved Black women, while amplifying the resilience of the existence and experiences of these women to this day.

Higher Fatalism Predicts Suspicion of but not Willingness to Participate in Clinical Trials Among U.S. Adults Diagnosed with Cancer

Isabella Castro

Cancer is a leading cause of death in the U.S., though survival and quality of life are improving due to advances in screening, treatment, and supportive care developed through clinical trials. Despite this progress, participation in clinical trials remains low and there are notable racial/ethnic disparities in clinical trial participation. Guided by the Health Belief Model, fatalistic beliefs (e.g., viewing cancer as uncontrollable and inevitably fatal) may reduce perceived benefits in clinical research, prompting suspicion of and reducing willingness to participate in clinical trials, particularly among groups historically marginalized in medical research. Clarifying how these beliefs relate to attitudes toward clinical trials can inform strategies to promote trust and promote equitable engagement in cancer research. Purpose: To understand the relationship between fatalistic

cancer beliefs and attitudes toward clinical trial participation, we tested whether lower cancer fatalism would be associated with lower suspicion of and higher willingness in clinical trials. Method: We used data from the 2024 Health Information National Trends Survey (HINTS) 7 to analyze a subsample (n=736; weighted n=15,688,101) of adults diagnosed with cancer. We tested whether fatalism (e.g., "When I think about cancer, I automatically think about death"; 1-4 scale) predicted willingness to participate in clinical trials (Y/N) and suspicion in clinical trials (1-5 scale). Covariates included age, sex, race and ethnicity, and health insurance. Results: Fatalism was significantly associated with higher suspicion of clinical trials (b=0.87, p=.025, 95% CI=[0.022, 0.316]). However, fatalism was not associated significantly with willingness to participate in clinical trials (OR=0.95, p=.812, 95% CI=[0.65, 1.40]). Black/African American participants reported significantly higher suspicion of clinical trials, compared to non-Hispanic White participants (b=0.87, p=.021, 95% CI=[0.11, 1.31]). Conclusion: Although fatalism was associated with greater suspicion of clinical trials, it was not linked to lower willingness to participate. Black/African American participants also reported higher suspicion compared to non-Hispanic White participants, yet willingness was comparable across groups. These findings suggest that disparities in clinical trial participation may stem less from individual attitudes and more from structural inequities in trial access and recruitment.

How Does Sex Trafficking Change with Abortion Rights?

Olivia Gallagher

I examine the impact of changes in state abortion law due to the overturning of Roe v Wade on sex trafficking in the United States. I create a comprehensive data set of all 50 states from 2015-2025, ranking their abortion restrictiveness. I find a causal impact through implementing a difference-in-difference model with Google Search Trend data. By using search trends, I measure sex trafficking awareness to avoid the underreporting of sex trafficking frequency. I translate an increase in awareness to a decrease in individual risk. I explore the mechanism that connects abortion law to sex trafficking, specifically, female economic agency. Female economic agency is a weighted index variable that represents a woman's control over her economic outcomes and overall financial freedom. Economic sex trafficking literature is seldom, so my research is innovative and novel.

How Micro-Forests Influence Biodiversity in Los Angeles

Stephanie Flores

Urban development often leads to habitat fragmentation and biodiversity decline. This study examines how a native species micro-forest can enhance local animal biodiversity while contributing to carbon sequestration. The study site, located in Ascot Hills Park in East Los Angeles, covers 10,000 square feet and was planted in November 2023 with over 800 seedlings representing 30 native California species. Biweekly 60-minute roving surveys and quarterly 24-hour insect pit traps were conducted to measure animal biodiversity in both the micro-forest and an unaltered 10,000-square-foot control plot. Observations were identified to the lowest taxonomic level and categorized by frequency. Results indicate that the micro-forest hosts an average of 17.8 animal types per month, compared to 9.2 in the control plot. To date, 90 species representing 64 families and 9 classes have been documented in the micro-forest, whereas the control plot supports 58 species across 45 families and 7

classes a ~55% increase in species richness. These findings suggest that native plant micro-forests can substantially enhance species richness and taxonomic diversity in urban areas while mitigating biodiversity loss and supporting ecosystem resilience.

How Politics and Social Media Shape Misinformation and Confirmation Bias About Autism

Kaitlin Pintens

Today, the reach of social media is further than ever. While social media can be a valuable tool to share one's life and learn information, it can also facilitate different versions of the "truth" from politicians. On October 9th, 2025, the Secretary of Health and Human Services, Robert F. Kennedy Jr., claimed a supposed link between acetaminophen (also known as Tylenol) taken during pregnancy and the development of autism in children. However, in light of these claims, alternate research has been uncovered and produced suggesting the opposite: that there is no causal link between acetaminophen and the development of autism. Yet assertions like these continue to spread, especially on social media, becoming what is known as misinformation. Misinformation refers to claims based on false or misleading evidence due to a lack of scientific validation. My project aims to better understand how misinformation spreads on social media, specifically misinformation about autism, and propose a solution combatting this issue. Based on findings from an extensive literature review I argue that misinformation leads to confirmation bias, or the tendency to only pay attention to information that confirms your previous beliefs. I further determine these two concepts work together to increase stigma against various communities, such as the autistic community. I then propose inoculation theory as a possible intervention, analyzing previous applications of it to misinformation resistance. I then conclude inoculation theory provides a promising way for social media companies to combat misinformation and confirmation bias, in turn reducing stigma against the autistic community.

Hsp70 Protein Abundance in Mytilus Galloprovincialis Collected from Site-Specific Locations and Across Seasons

Alexander Provenzano

Mytilus galloprovincialis is a bivalve that creates habitat structures, increasing ecosystem biodiversity, and is used as a biological indicator of ecosystem health. Studies of M. galloprovincialis tissue cellular responses, such as molecular chaperones (Hsp70), indicate the overall stress that the mussel is experiencing from the environment. In this study, we determined the osmotic stress tolerance of M. galloprovincialis from two different sites, Ballona Creek (BC) and Marina del Rey Harbor (MDR), CA, and from different seasons, Summer and Winter. We hypothesized that mussels collected from BC would have a greater Hsp70 protein abundance, and thus tolerance to hyposalinity, due to greater fluctuations in environmental salinity compared to MDR mussels. We also hypothesized that season would not impact cellular Hsp70 abundance. Mussels were collected and 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 Summer BC samples, mussels exposed to

20 ppt showed the greatest Hsp70 abundance. Our study provides vital information regarding cellular responses to osmotic stress that may be important for informing studies of ecosystem diversity and environmental change across seasons.

The Impact of Federal Education Cuts on Underrepresented Students

Fiorella Salazar, Mary Awofodu

The proposed policies on immigration and education by the Trump Administration have a significant impact on vulnerable college student populations within higher education systems (Grayer et al., 2025). These policies create barriers for immigrants, first-generation, and low-income students, particularly through financial aid limitations, legal constraints, and inadequate institutional support. Federal disinvestment directly threatens critical programs and resources that underrepresented students within the California State University (CSU) system rely on (Rosales et al., 2025). Reductions to Pell Grants and the Federal Work-Study program, which low-income students are highly dependent on, can prevent students from college enrollment or completion. The CSUs alone distributed over one billion dollars in Pell Grants to more than 200,000 students in 2023-24, underscoring the scale of potential harm (Rosales et al., 2025). Furthermore, vital support initiatives, such as TRIO programs (e.g., Upward Bound, McNair, Student Support Services) and Educational Opportunity Programs (EOP), face funding reductions, which could hinder student success and disrupt educational continuity. CSU Long Beach, Northridge, and San Bernardino are prime examples that demonstrate the necessity of these programs, as well as campus-based legal services that provide immigration support through partnerships with organizations such as CARECEN LA and CHIRLA. Without sustained financial and institutional support, undocumented and mixed-status students and their families remain vulnerable (Rosales et al., 2025). The findings highlight the influence of federal policy decisions on institutional capacity, exacerbating existing barriers within higher education rather than eliminating them. This research seeks to address that gap and contribute to practices that promote equity, access, and educational justice.

The Impact of Television Series in Expanding Film Franchises Through Star Wars: The Clone Wars and Star Wars: Rebels

Brady Allison

This project seeks to closely analyze the role that television series play in expanding the narrative world of film franchises by exploring the Star Wars franchise and two of its series, Star Wars: The Clone Wars, and Star Wars: Rebels. Expansive scholarship exists on the overarching franchise, yet these animated series have been overlooked, despite the crucial context on the value of adding television installments to film franchises they provide, especially in context of transitioning the franchise to Disney ownership. To explore the series as installments in a larger franchise, I perform a close analysis of eight episodes comprising two narratives of The Clone Wars, and four episodes comprising two narratives of Rebels. I consider release context, narrative timeline, audiovisual elements, character actions, and audience reception to assess what contributions these series make to the overall story. My preliminary conclusions include how these series expand the science fiction world-building to realize more of the story world and draw in new audiences, as well as adds depth and context

to character actions. Most importantly, it works to reinforce elements of the feature films that audiences liked, while minimizing or correcting aspects that were unpopular. In The Clone Wars, this attempts to minimize the Prequel Trilogy's unpopularity, while it allows Rebels to serve as a bridge between previous iterations of the franchise and the new era of Disney Star Wars. Both of these series expand the narrative and universe of Star Wars, appealing to new viewers while reinforcing the preferences of existing audiences.

Improved User Interface and Export Functionality for GRNsight 7.4, a Web Application for Visualizing Gene Regulatory and Protein-Protein Interaction Network Models

Amelie Dinh, Milka Y. Zekarias, Jia S. Garcia, Alex J. Miller, Cindy L. Tong

GRNsight is an open-source web application for visualizing models of gene regulatory (GRN) or protein-protein physical interaction networks (PPIs), either uploaded by the user or retrieved from the backend database. A gene regulatory network consists of genes, transcription factors, and the regulatory connections between them that govern mRNA and protein expression levels. PPIs represent binding between proteins. While GRNs are displayed with directed edges, PPIs display undirected edges. GRN nodes can be colored with mRNA-level timecourse gene expression data, either supplied by the user or provided by our backend database. Node coloring for PPIs is now disabled by default but can be enabled by users and has undergone multiple rounds of debugging to ensure a correct default off state while still allowing users to enable the feature. The user interface for this feature has been improved to clarify the expression data source. GRNsight data can be exported to an Excel workbook with multiple worksheets for use with our sister MATLAB software, GRNmap, Gene Regulatory Network Modeling and Parameter estimation. Export functionality has also been enhanced to clarify the options available. For example, the dialog window now displays a preselected expression data source that corresponds to the currently displayed node coloring settings. Users can then choose a different expression data source or export a network without any expression data. With enhanced node coloring and export functionality, GRNsight provides accurate visualization of molecular interaction models, supporting effective data interpretation and biological discovery. GRNsight Classic v7.4.0 is available at https://dondi.github.io/GRNsight/.

Influence of Solvent Polarity and Hydrogen Bonding on the Rate of Hünig's Base Catalyzed Acylation

Isabella Garcia Ascencio

Understanding solvent effects in major classes of reactions is an important tool for organic chemists. The impact of solvent structure can be probed by evaluating reaction rates as a function of solvent properties using Kamlet-Taft parameters, which describe solvents according to their polarity (pi), as well as hydrogen-bond accepting (beta) and hydrogen-bond donating (alpha) abilities. The progress of a model acylation system involving a phenolic nucleophile, an N-acylimidazole electrophile, and Hünig's base was evaluated under diverse solvent environments while keeping all else constant. The kinetic effect of solvent polarity and hydrogen bonding ability, as well as catalyst concentration was monitored through 1H and 19F NMR spectroscopy. It was observed that acylation rate constants vary considerably from solvent to solvent. Moreover, assessment of the relationship between reaction rate and solvent parameters provides mechanistic insight particular to acylation reactions,

especially regarding catalyst-substrate interactions. Design of the model system as well as rate constants as a function of solvent polarity and hydrogen bonding profile are discussed.

Intellekt Dezinformatsia: Artificial Intelligence, Regime Type, and the Future of Information Warfare
Tze Fung Kao

Artificial intelligence has become a central feature of contemporary information warfare and influence operations (IWIO), enabling the large-scale production, personalization, and dissemination of persuasive and deceptive content. Existing scholarship often frames AI as a technological equalizer that lowers barriers to influence for all states. This thesis challenges that assumption. It argues that artificial intelligence functions primarily as a force multiplier rather than a revolutionary determinant of information warfare outcomes, and that its political effects are shaped less by technological capability than by regime-specific norms, identities, and constraints. Drawing on a constructivist framework, the study conceptualizes AI-enabled IWIO as a form of cognitive warfare that targets the social construction of meaning, legitimacy, and political reality. Rather than persuading audiences of discrete falsehoods, AI-driven influence operations saturate the information environment, eroding epistemic trust and destabilizing shared interpretive frameworks. These dynamics have asymmetric consequences across regime types. Democratic states, whose legitimacy rests on transparency, accountability, and public reason, face structural constraints in both deploying and responding to AI-enabled influence operations without undermining their own normative foundations. Authoritarian regimes, by contrast, integrate AI into centralized systems of narrative control, surveillance, and propaganda, allowing them to deploy AI-IWIO offensively while reinforcing domestic legitimacy. The thesis develops the concept of regime-type restraint to explain this asymmetry and introduces an asymmetric feedback loop model to show how repeated interactions in the information domain cumulatively advantage authoritarian systems while imposing escalating legitimacy costs on democracies. Through an interpretive analysis of U.S. and Chinese information environments, doctrinal frameworks, and documented AI-enabled influence episodes, the study demonstrates how identical technological tools produce divergent political effects. By reframing AI-enabled information warfare as a contest over meaning rather than capability, this research contributes to security studies and international relations by highlighting the constitutive role of legitimacy and identity in shaping strategic outcomes. It further raises policy-relevant implications for democratic resilience, warning that efforts to counter AI-driven influence through symmetric or coercive measures risk accelerating democratic backsliding and eroding the very norms democracies seek to defend.

Interaction of RGG-Motif Peptides and Topoisomerase Inhibitors with MYC Promoter G-Quadruplex
Zoe Castanon, Afia Acheampong, Max Barnett-Abrams, Angeline Dangca, Amelia Desmarais, Raffi Hovanessian, Andreea Stanciu, Zoe Zidon

"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 and small organic compounds 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 and small-molecule topoisomerase inhibitors on MYC promoter G-quadruplex structures and their effect on quadruplex integrity. Eight topoisomerase inhibitors and 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."

The Intersection Between Fictional Cinema and the World of Dreams

Alexia Herrmann

Films within the fantasy and sci-fi genres allow us to process sociopolitical issues similarly to how dreams allow us to process reality. However, fantasy and sci-fi films are frequently pushed aside in favor of films that exist in the realm of non-fiction or realism. By using genre to delve into a different world, filmmakers are able to discuss topics which would be difficult to connect with without a fictional premise. Whether it's a large-scale, mainstream series like Star Wars, which uses the story of an intergalactic war to discuss imperialism and colonialism, or a standalone film such as 2001: A Space Odyssey which is an early commentary on artificial intelligence, science fiction helps audiences comprehend subjects which could be sensitive or easily rejected, were they not presented under the gaze of fiction. A pillar of the fantasy film genre, Lord of the Rings, talks about government involvement, industrialism, and the struggle between inherent good and true evil. On the softer, less war-focused side of the fantasy genre exist movies like Princess Mononoke, which touches on heavy themes of environmentalism, and asks the viewer to seriously consider their own actions in a way that a documentary film might not be able to access. In this paper I will discuss how these genres act like dreams in their ability to allow us to process the world through the absurd and surreal, as well as how they are able to eloquently communicate sensitive topics.

Investigating Sex-Specific Growth Differences Between Great Black-backed Gull (Larus Marinus) Chicks

Gia Rizvi

The Great Black-backed Gull, Larus marinus, is a species of urgent conservation concern, with recent studies of its ecology and physiology seeking to fill various knowledge gaps. Relatively little research has been conducted to understand the morphological differences between male and female gull chicks in this genus. Our study aims to investigate potential sex-specific differences in chick size and/or growth rate. Using blood samples from individual chicks in a breeding colony located on Appledore Island, Maine, we extracted DNA and amplified

gene segments that differ between their sex chromosomes. These were analyzed using gel electrophoresis, thus genetically sexing the individuals. Morphometric information of headbill length and mass previously gathered on hatchday and day 12 will be compared across individual chicks to determine sex-specific characteristics. The availability of genetic sex data is necessary in understanding chick growth rate and survivorship between males and females.

Investigating the Ability of the MeOQ Photobase to Deprotonate Alcohols that Can React with Selected Solvents

Marian Barcenas Ortega

Utilizing light to power and control chemical reactions is a major goal in the field of physical organic chemistry. The aim of this project is to use UV light to activate photobases, molecules capable of deprotonating other molecules using light, and use them to initiate interesting chemistry. In our preliminary work, the photobase 5-methoxyquinoline (MeOQ) was investigated for initiating the Bamford-Stevens reaction of cyclohexanone p-tosyl hydrazone. Solutions of these compounds in the solvent dimethylformamide were exposed to UVA and UVB radiation for multiple hours. These solutions were then analyzed using NMR spectroscopy. While preliminary evidence suggested the photobase was successfully catalyzing the reaction, control experiments demonstrated that the reaction was instead being initiated by the high energy UV radiation and occurred to the same extent in the absence of the photobase. Based on these results, our current research has a new but related focus of studying the capacity of photobases like MeOQ to deprotonate alcohol molecules which can then react with carefully chosen solvents. Preliminary fluorescence data suggests that MeOQ can deprotonate the alcohol hexafluoroisopropanol in both methyl methacrylate and dichloromethane solvents. Current work involves irradiating these solutions with UVA and UVB light and studying the resulting solutions with NMR spectroscopy. We hypothesize that the photobase-activated form of hexafluoroisopropanol will react with these solvents to create new molecules like the plastic PMMA and fluorinated ethers. These results may represent an entirely new approach to photochemical synthesis using photobases.

Investigating the Progression of Gastrulation in Trachemys Scripta Turtle: Correlation of Changing Blastopore Shapes and Internalized Tissue

Lila Le

Introduction: During the crucial process of gastrulation, the coordinated movements and differentiation of all germ layers establish the foundations of tissue development and organization. Amphibians, reptiles, and aves undergo gastrulation through different mechanisms. While amphibians exhibit involution during gastrulation and aves gastrulate via ingression, reptiles are an evolutionary intermediate, demonstrating both mechanisms. In reptiles, while ingression occurs ventrally, on the dorsal side, the blastopore lip is the fundamental structure at which involution occurs by 3 main blastopore lip shapes: upturned, flat, and downturned. However, there is yet to be a sequential correlation of involuting ectodermal tissue with changing blastopore shapes during gastrulation. We aim to advance the understanding of reptilian gastrulation by correlating the changes in blastopore shapes with the progression of tissue internalization in turtle. Methods: Turtle eggs were collected

and incubated from gastrula stages 0-2 days post oviposition, at 6-hour time intervals. Embryos were harvested, cryosectioned sagittally, and stained with hematoxylin and eosin. Results: We show that turtle blastopores begin upturned, flatten into a thin line around 12-18 hours of maturation, and by 24 hours completely invert to a downturned curve. Furthermore, as the blastopore shape changed from upturned, to flat, to downturned, we found that the amount of tissue internalized followed this progression of involution respectively: partial, halfway, and complete. Conclusions: Determining the correlation between changing blastopore shape and involuted tissue will advance the understanding of chelonian gastrulation and may inform on the evolution of gastrulation mechanisms between amphibians and aves, with reptiles as a key transition.

Is Age Just a Number? An Analysis of Taphonomy in Older Deposits at the Rancho La Brea Tar Pits

Paola Lopez de Cardenas, Julia Domanskis, Isabella Del Castillo

The Rancho La Brea Tar Pits houses the largest collection of fossils from the Late Pleistocene in the world, from about 50,000 years ago through the Holocene. Analyses of taphonomy, which is defined as the process of bone fossilization from death to excavation, provide historic information about how environmental conditions changed over this period of time. Categories of taphonomy measured include weathering, abrasion, and pit wear. We expect taphonomy to reflect climate conditions, including the presence of water during burial. While previous research has focused on younger deposits (19-13 thousand years ago, kya), this analysis aims to better understand the older deposits of Pits 9 (which contained mammoths and mastodons) and 77, which represent 42 - 33 kya, a timeframe defined by significant climate instability characterized by abrupt millennial-scale oscillations between cold and warm phases, alongside the potential trampling effects of megafauna in Pit 9. Focusing on these older deposits allows us to gather data from a period of high-frequency environmental stress and compare these trends to other younger, more climatically distinct deposits. We hypothesize that taphonomy measurements will occur at higher rates in Pits 9 and 77 due to their extended entrapment window during a period of extreme climate instability. Future work may include sedimentary data and spatial analyses to potentially identify other factors leading to trends in taphonomy across the different deposits.

Is Race a Factor Determining Cardiovascular Reactivity to Stress in College Students: A Pilot Study Exploring Health Discrepancies in the University Environment

Manuel Sune, Leyat Hailu

Discrimination imposes negative consequences on emotional health. Physiological effects are often overlooked in underrepresented communities. Depression and stress among young individuals, may lead to declined cardiovascular health, which is a health parameter to predict the body's circulatory strength in upcoming years. This study compared cardiovascular reactivity to stress between White and non-White college students. Methods: The experiment is a pilot analysis of a larger project. College-aged students (18–22; n = 14) completed questionnaires on sociodemographic data, perceived stress, and depression. Participants underwent the cold pressor test (CPT), which they immerse their hand into cold water (4-9oC) while monitored with the (FINAPRESS NOVA) that records hemodynamic variables. Recording involved a 10-minute baseline, followed by 2-min CPT, and 5-minute recovery. Results: Eight self-declared white students and six self-declared non-white students were

included this analysis. Comparing to white students, non-white present a higher depression score (3.5±3.8 vs. 6.33±3.4), higher levels of perceived stress (18.5±4.1 vs. 20.0±4.1). Additionally, non-white students also had higher delta peak of systolic blood pressure (delta peak:79.9±16.6 vs. 73.5±20.3 mmHg) and heart rate (delta peak: 16.2±5.1 vs. 12.0±11.9 bpm). Sample size is not large enough to provide statistical power for comparison analyses. Conclusion: Non-white students had higher levels of perceived stress and depression scores, which are likely related to elevated peak systolic and diastolic blood pressure during the CPT. Non-White individuals are more likely to experience discrimination, which accumulates over time contributing to chronic stress. The results give insight into mechanisms contributing to health discrepancies in underserved communities.

Is the Doctor Worth It? The Relationship Between Immigration Policies and Latinx Immigrants' Access to Healthcare

Sophia Rivera

Throughout the history of the United States, immigration continues an unending debate on who belongs, and who does not. The American government has time and time again implemented policies that target Latino immigrant populations due to narratives that they do not belong or are taking resources away from American citizens. This targeting contributes to anxieties surrounding the inquiry of immigration status and the possible risk of reporting to immigration authorities. Latino immigrants become less likely to interact with the healthcare system and seek out treatments if they suspect their information may be accessed by immigration services. This research aims to explore how immigration policies indirectly or directly restrict Latino immigrants' access to healthcare, as well as the mental and emotional toll it takes on them. Peer-reviewed articles containing qualitative and quantitative data from both Ethnic Studies and Public Health journals are used to dive deeper into the relationship between immigration policies and access to healthcare. Legislation surrounding immigrations may or may not specifically name healthcare-related restrictions, but in both cases, Latino immigrants are subject to higher risk of facing repercussions due to their status, such as fewer resources, coupled with increased distrust and fear of healthcare providers.

Isolation, Cloning, & Characterization of DNF2 Homolog in Melilotus Alba via Reverse Transcription-Polymerase Chain Reaction and In-Situ Hybridization

Alexandra Whitcomb

Legumes showcase an increasingly curious phenomena; these specimens establish symbiotic relationships with rhizobacteria that convert atmospheric nitrogen (N2) into bioavailable nitrogen required for plant development. In Melilotus alba (White Sweetclover), symbiotic nitrogen fixation occurs within specialized root nodules which require coordinated regulation of host defense during infection pathway initiation. Previous work in Medicago truncatula identified the Defective in Nitrogen Fixation 2 (DNF2) gene as a critical factor encoding for a phosphatidylinositol-specific phospholipase C (PI-PLC) required for the maintenance of nitrogen-fixing nodules. Curiously, molecular characterization of DNF2 had not been reported in M. alba. This investigation aimed to isolate, clone, and preliminarily characterize a putative DNF2 homolog expressed in M. alba root nodules. Previously purified RNA from nodular tissues underwent Reverse Transcriptase-Polymerase Chain Reaction (RT-

PCR) to generate complementary DNA (cDNA) and amplified a candidate DNF2 fragment using M13 Forward and Reverse primers. The resulting fragment was ligated into a pGEM® T-Easy cloning vector and subsequently transformed into Escherichia coli. Two recombinant colonies underwent extensive screening, and promising recombinant plasmids were sequenced. Sequence analysis and megaBLAST® alignment revealed (96.09%) percent identity to the DNF2 gene in M. truncatula, confirming homology to PI-PLC family proteins, supporting the identification of a DNF2 homolog in M. alba. Concurrent-preliminary In-situ hybridization analysis further suggests transcriptional activity of DNF2 within older nodular tissues. These findings represent one of the first molecular characterizations of a DNF2 homolog in M. alba and provide a promising foundation for future studies investigating conserved mechanisms of nodule maintenance and symbiotic nitrogen fixation.

Knowledge Grapht: AI-Powered Spaced-Repetition Aid and Course Mastery Modeling
Thomas Rife

Knowledge graphs have traditionally been used to visualize and structure course content by illustrating concept relationships. This work explores a web app extension of knowledge graphs, called Knowledge Grapht, aided by generative AI and designed to facilitate future causal inference to support instructors and students alike. This project enables students to utilize structured course knowledge graphs created by instructors, where nodes represent course concepts and edges encode prerequisite relationships. Students can take quizzes associated with nodes using a mix of instructor-curated and AI-generated questions, with each node's proficiency dynamically adjusted based on quiz performance and review frequency. Students are encouraged to review topics they struggle with more frequently through a spaced-repetition schedule that emphasizes long-term retention, inspired by validated techniques like the Leitner Box. Instructors benefit as quiz data is used to calculate and visualize population-level concept mastery statistics, as well as individual student proficiencies to identify challenging concepts. This project evaluated the integration of Knowledge Grapht in computer science courses to examine relationships between concept-level mastery and final exam performance. The platform was deployed during regular course activities, and usage data was analyzed alongside performance on graded assessments. The analysis examined correlations between practice activity, concept-level proficiency, and exam achievement. Results revealed a positive correlation between students' concept-level mastery scores and final exam performance, with higher engagement in targeted practice and spaced review associated with stronger exam outcomes. Findings from this implementation demonstrate how AI-assisted knowledge graph systems can support personalized learning and inform future approaches to course design.

Kubishi Scholar
Sebastian Lange, Quinn Austin

We present a web application designed to help researchers discover conferences that are the best fit for their work. Existing conference discovery tools largely rely on static filters or keyword searches, offering limited personalization and little support for connecting people with shared interests. The primary contribution of this project is a simple, personalized conference discovery platform. By linking research papers to relevant conferences and researchers to one another, our system provides an intuitive solution that improves how

researchers disseminate their findings and build on their publications. Our application is backed by a database curated from globally recognized conference ranking sources such as CORE and Google Scholar. We use a large language model to extract key topics from each conference's current website and generate vector embeddings, which are stored alongside structured data in SQL and vector databases. We designed an agentic AI pipeline to run monthly to autonomously navigate conference websites, extract updated information, and synchronize records, ensuring the database remains current. Our platform supports both semantic and lexical search for conference discovery while also enabling user-level features such as conference ratings, user profiles, and uploaded papers, giving the platform a social dimension.

Local Realities to Global Goals: Advancing the SDGs in Iberia Parish

Ayden Brown, Sara Francis, Toni Bluford, Om Valia

This project is a collaboration between LMU's Sustainable Development Goal (SDG) Ambassadors and the Do It Greener Foundation to solve energy poverty and recurrent flooding by promoting coastal restoration and renewable energy resources in Iberia Parish, Louisiana. The purpose of this work is to support community resilience through research, education, and engagement-based toolkits to create sustainable solutions to environmental challenges. Our team first constructed a demographics report of Iberia Parish to assess the community's needs and primary issues affecting the residents. Additionally, we are creating an interactive and culturally relevant toolkit to engage community members at Iberia Parish schools, libraries, and events. Toolkits include an interactive map, "What If" Scenario Cards, and a Job Pathway activity. Our role is to design the prototype of these concepts, focusing on the educational perspective of them, and implementing the SDGs. This project serves as both an intellectually and personally fulfilling experience. It allowed us to apply global frameworks to local challenges through the engagement of SDGs 4: Quality Education, 7: Affordable & Clean Energy, 11: Sustainable Cities & Communities, and 17: Partnerships for the Goals, into actionable deliverables that educate, uplift, and support the Iberia Parish community. As our team has roots in Louisiana and includes an Environmental Studies major, we were able to propose scientifically supported solutions to address the challenges faced by communities close to home. Overall, this project benefits Iberia Parish residents by expanding information access, helping to identify career pathways, and empowering community members to develop sustainable solutions to environmental challenges.

Locating and Modeling the Hidden Fault in the Paloma Oil Field in Kern County, CA

Jack Davenport

The August 2024 magnitude 5.2 earthquake demonstrated the seismic activity of previously unrecognized blind thrust faults within the southern San Joaquin Basin. Two miles to the north of the August 2024 event lies the Paloma Oil Field located in Kern County, California, ten miles southwest of Bakersfield. Previously published reports on the faults within this oil field are limited to studies conducted in the 1940s and 2000s focused solely on oil and gas exploration, not subsurface fault geometry. We present a new 3D model of the fault structures present within the Paloma Oil Field. This model is based on the analysis of 2D seismic reflection data with horizon picks from the CalGEM Oil and Gas Well Database. With this model we identified a signature of growth

throughout the Pleistocene sedimentary section, shown by the growth stratigraphy and identified growth triangles along the strike of fault. This indicates that the fault has been active through the last 500,000 years. Through fault-related folding analysis we have determined a 200-year recurrence interval with the potential for magnitude 6.0+ earthquakes, with an expedited slip rate beneath important infrastructure. This includes lifeline infrastructure for California such as I-5, and the California Aqueduct. This analysis will better prepare local and state authorities to a previously unknown seismic hazard.

The Long-Lasting Effects of "Taken" (2009) on the Depiction of Human Trafficking in Media, and How it Alters the Audience's Ideology of Trafficking

Genevieve Von Manti

How has the successful 2009 film "Taken" solidified the "perfect victim" trope in the universal perception of trafficking? Why does the ideology of trafficking center a white, conventionally attractive, young girl, and how does that further perpetuate a paternalistic and infantilizing view of female victims? The research I have done regarding the long-lasting impacts of "Taken" (2009) will support the claim that the movie is responsible for the ongoing idea of "perfect victimhood" in human trafficking depiction, as well as created the template for human trafficking tropes in media to this day. This is essential to fully grasp the etymology of these universally subscribed to ideologies that are rooted in little to no reality. How has the "perfect victim" human trafficking trope formulated by the movie "Taken" (2009) altered the way the public perceives victims of human trafficking? Why does the universal ideology of "human trafficking" revolve around young, white, conventionally attractive women, and how does that further push a misogynistic and infantilizing view of female victims? I will provide direct plot points of the movie "Taken" (2009), and examples of trafficking-based media coverage following the release of the movie. The correlations of mental imagery and media consumption will answer where the subconscious bias and opinion of human trafficking originate from, and how that manipulates what media prioritizes such as: sex. This poster will display quantitative, qualitative, and correlational research to give a fully covered and thorough analysis of the topic.

Macro x LatAm: Teaching Intermediate Macroeconomics with Lessons from Latin American Economies

Dana Christensen-Levy

This paper argues that macroeconomic experiences from Latin America can enrich the teaching of undergraduate intermediate macroeconomics. Review of one hundred syllabi shows that current curricula rely heavily on U.S. and European examples, limiting students' exposure to global macroeconomic variation. This paper shows that episodes from Latin America, including hyperinflation, sovereign debt crises, labor market informality, and shifts in trade and monetary regimes, provide clear illustrations of standard macroeconomic mechanisms without requiring changes to core models. An outline of practical strategies for incorporating these cases into existing courses, ranging from brief empirical examples to full case studies and data projects is also provided. Integrating Latin American experiences can broaden students' global understanding and strengthen their mastery of key macroeconomic concepts.

Magnetic Susceptibility as a Function of Temperature

Lucas Canestraro-Ahnen

Magnetic fields are an essential part of many modern technologies. Understanding how materials will behave in these fields is therefore of great interest and can be characterized by their magnetic susceptibility. The magnetic behavior of these materials is quantum-mechanical in nature and depends on the electron spin and angular momentum. If a material has a magnetic field that opposes an external magnetic field, then it is diamagnetic, if the magnetic field aligns with an external field, then it is paramagnetic. Unlike ferromagnets (e.g., fridge magnets), both of these types of materials do not have permanent magnetic fields and only have a magnetic field in the presence of external fields. The magnetic susceptibility of several paramagnets and diamagnets will be measured from 77K to 300K. The temperature of the system will be controlled by a cryostat filled with liquid nitrogen. The samples will be placed into nested solenoids where the outer solenoid creates a magnetic field, and the inner solenoid measures the induced emf produced from the magnetic response of the sample. The results will emphasize the importance of quantum-mechanical treatments to understand the macroscopic behavior of materials.

Major Code and Data Migrations for GRNsight, a Web Application for Visualizing Gene Regulatory and Protein-Protein Interaction Network Models

Cecilia J. Zaragoza, Ngoc K. Tran, John David N. Dionisio, Kam D. Dahlquist

GRNsight is an open-source web application for visualizing models of gene regulatory networks (GRNs) and protein-protein physical interaction networks (PPIs), either uploaded by the user or retrieved from our back-end database. A gene regulatory network consists of genes, transcription factors, and the regulatory connections between them that govern expression levels of mRNA and proteins. A protein-protein physical interaction network represents the binding relationships between proteins. GRNsight displays graph models where rectangular nodes represent genes or proteins with edges connecting them. While GRNs have directed edges to indicate regulatory relationships with edge thickness indicating regulation strength, PPIs have undirected edges to indicate physical binding. Timecourse gene expression data can be displayed as a heatmap on the individual nodes. As its core, GRNsight integrates a PostgreSQL backend that serves as a centralized repository for molecular interaction and expression data for Saccharomyces cerevisiae. Due to the discontinuation of YeastMine, we migrated the data source to AllianceMine, ensuring continuity of high-quality data. In addition, the GRNsight codebase has been migrated from Express JS to a React Vite front-end with Grommet UI styling. Improved state management across the web application and the separation of code into reusable components result in better code maintainability. By combining a durable data backend with a modernized, responsive frontend, GRNsight provides a performant and maintainable framework that allows biologists to gain deeper insights into complex molecular systems. GRNsight Classic v7.4.0 is available at https://dondi.github.io/GRNsight/; GRNsight React is available at https://dondi.github.io/GRNsight/react-thesis-4081.

Mapping Out Wildfires with Semi-Autonomous Drones and Thermal Cameras

Colin Bajo-Smith, Sebastian Lange, Quinn Austin

How can autonomous drones equipped with thermal imaging be used to accurately and efficiently map fires in real time? As LMU students living in California, frequent wildfires have always been a pressing issue that endanger many people's lives. Using drones that can be easily deployed to map fires quickly and accurately keeps civilians informed and greatly helps fight fires. We conducted tests on the drone to autonomously navigate to predefined three-dimensional waypoints and rotational directions. Testing was performed both inside and outdoors, where the drone successfully reached its target positions while compensating for external factors, such as wind. Additionally, we established a strong link with a remote computer by transmitting telemetry data throughout the mission. We learned how to design and implement a real-time communication system between autonomous drones, enabling consistent connections. We also learned how to integrate waypoint navigation with stability controls that allow drones to adjust for real-world conditions. We worked together to create a drone framework that supports autonomous flight to specific coordinates and rotational directions. Our research shows that autonomous drones can help make wildfire detection and responses faster, safer, and more effective. By sending real-time maps and data, these drones can provide support in dangerous situations. The same drone setup could be used for controlled burns and prescribed fires to keep track of everything going on. Ultimately, our project demonstrates how autonomous systems can be applied to real-world challenges with a meaningful impact.

Mapping Soil Contaminants From the 2025 Los Angeles Fires: A Spatial Analysis of Post-Fire Contaminants in the Palisades and Eaton Burn Zones from the Community Action Project's (CAP.LA) Test Results

John Kassabian

Following the Palisades and Eaton fires in January 2025, the Community Action Project Los Angeles (CAP.LA) led soil testing efforts across over 3,000 properties to assess contamination, inform policy, and provide free testing to affected homeowners. In the absence of complete and comprehensive testing from local, state, and federal governments, researchers from UCLA and the Center for the Study of Los Angeles at LMU analyzed thousands of samples to understand post-fire soil conditions. This project aims to map, spatially analyze, and provide an accessible dashboard for soil test results. As samples are tested, the data is aggregated and anonymized into a preassigned grid of 0.05 square mile hexagons on ArcGIS Online to display whether the area is above or below the testing threshold for the 18 different metals included in the project. Metal-specific dashboards indicate the average metal concentration, in mg/kg, and identify the number of samples above the thresholds. The maps and dashboards show the unequal distribution of soil contaminants, namely with high levels of arsenic, lead, and thallium, and directly inform public health policy, recovery efforts, and individual residents' soil remediation efforts. The use of spatial mapping provided critical details of post-fire soil conditions and highlighted the role of localized environmental testing in recovery, the importance of data sharing, and the benefits of "doing with not for." Further, the spatial analysis helped democratize the data and empower residents, governing bodies, and policymakers to make informed decisions about the health and safety of the region.

Marketing Without Billboards: Innovative Marketing in Hawai'i's Regulated Landscape
Kolton (Koko) Leong

Opposed to how in the continental United States where billboards that line streets, skylines, and public spaces, Hawaii's ban on traditional billboards has long created a unique marketing environment. Yet, due to the need of Hawai'i businesses and brands need to market, innovative approaches and strategies were used to adapt to this unique marketing landscape. This research project will investigate the alternative marketing strategies used by Hawaii businesses, analyze how they adapt to restrictive advertising laws, why they made this rule, and how this adaptive spirit is/can be applied in other areas of business. The findings aim to provide insights valuable not only to businesses operating in Hawaii but to other businesses facing strict marketing or regulatory constraints elsewhere.

MATHi & The Futo Torro Region in Senegal
Daniel Shew

Mathi is a mobile free learning app that is slow paced, using familiar personal narrative analogy to understand algebraic mathematical concepts that are business oriented. The project was developed through an engaged learning process centered on iteration, feedback, and community perspective. Interviews with teenagers and parents directly informed how Mathativities should be designed and paced. This project is also shaped by my own experience with learning. I struggled with algebra when it was taught in a highly abstract and theoretical way that felt disconnected from anything real. Over time, I realized I did not need to master all of mathematics, only the algebra that actually applies to what I want to do. I had a similar realization with economics. Even though it was not the right discipline for me, core ideas like market structure and firm behavior stayed with me because they explained how the world actually works. Difficulty does not mean failure. Often, it simply means the teaching method does not match the learner. MATHi is built around that understanding. The project could benefit and impact the project clients by having kids who may be rich in knowledge of a fantasy genre or narrative towards approaching learning algebraic mathematics, particularly algebra 1, and want a non-competitive slow-paced environment.

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

SARS-CoV-2, the virus responsible for COVID-19, uses a programmed -1 ribosomal frameshift (-1 PRF) site to control protein synthesis and replication (Zimmer et al., 2021; Munshi et al., 2022). The Mouzakis Lab has previously studied HTLV-1 (Human T-cell leukemia virus type 1) to understand how frameshift site RNA structures contribute to −1 PRF. In 2020, a related SARS-CoV-2 project started in the lab, which used a dual-luciferase reporter assay to measure SARS-CoV-2 frameshift efficiency. The goal of this project was to create a more cost-effective approach for measuring SARS-CoV-2 frameshift efficiency with dual fluorescent reporter proteins. Previously published reporter plasmid constructs producing mCherry and green fluorescent protein (GFP)

separated by the SARS-CoV-2 frameshift signal were identified, and primers were designed for PCR to create templates for in vitro transcription and later application in a cell-free translation system. The PCR conditions and primer design were improved to increase specificity and eliminate nonspecific products. This establishes a foundation for future in vitro measurements of −1 PRF that can be directly compared to dual-luciferase results and previously reported in vivo results.

Mediating Effect of Self-Focused Reflective Writing on the Relationship Between Depression and Guilt and Shame

Kathryn Duff, Isabella Casto, Brandon Dona-Velazquez, Evan Wu

Depression is associated with elevated self-conscious emotions (e.g., guilt, shame). Additionally, research shows that individuals with more depressive symptoms use first-person singular pronouns more in their writing, indicating self-focused attention. Linguistic markers offer an indicator of self-focus that may clarify mechanisms linking depression and self-conscious affect. However, it remains unclear whether self-focused writing explains the association between depression and self-conscious affect. Purpose: To examine whether self-focused writing mediates the relationship between depressive symptoms and feelings of guilt and shame. Participants (N=196) completed a validated questionnaire of depressive symptoms (PHQ-9) and completed a standardized task in which they were asked to write about a personally shameful experience for ten minutes. Written responses were analyzed using Linguistic Inquiry and Word Count (LIWC) to quantify first-person singular pronoun use. Self-conscious emotions (guilt and shame) were assessed before and after the writing task using validated questionnaires. Data collection is complete, and analyses are underway. Planned analyses include testing whether first-person singular pronoun use is associated with depressive symptoms and whether self-focused language mediates the relationship between depressive symptoms and pre- to post-task changes in guilt and shame. We hypothesize that greater use of first-person singular pronouns will be associated with higher depressive symptoms and that self-focused writing will mediate the relationship between depression and changes in guilt and shame. This study is expected to clarify self-focused writing as a mechanism linking depression to self-conscious emotions. Future directions may examine additional linguistic markers, such as negative self-description or absolutist language.

Medical Trust, Financial Concerns, and Preference for an At-Home Cervical Cancer Screening Test Among Hispanic/Latina Women Aged 21-65 in the U.S.

Brandon Dona-Velazquez

Hispanic/Latina women in the U.S. face a 36% higher incidence of cervical cancer than non-Hispanic White women but have lower screening rates (69% vs. 80%). In May 2025, the FDA approved the first at-home cervical cancer screening kit, which may help reduce barriers to screening such as financial concerns and low trust in healthcare. However, it remains unknown whether Hispanic/Latina women who face these barriers prefer at-home vs. clinic-based screening. Purpose: To test whether financial concerns, trust in doctors, and/or trust in the healthcare system predict preference for at-home vs. clinic-based cervical cancer screening among Hispanic/Latina women. Method: We used a subsample (n=344) of Hispanic/Latina women aged 21–65 from the

2024 Health Information National Trends Survey (HINTS) Cycle 7. A multivariable logistic regression model was conducted to test whether financial concerns, trust in doctors, and trust in the healthcare system predicted preference for at-home screening, controlling for income and insurance. Results: Higher levels of financial concerns were significantly associated with greater odds of preferring an at-home cervical cancer screening test (OR=1.63, p=.050, 95% CI [1.00, 2.66]). Trust in doctors and trust in the healthcare system were not significantly associated with screening preference (all p > .270). Conclusions: Financial concerns predicted preference for at-home screening among Hispanic/Latina women, suggesting that structural or financial barriers may shape screening decisions. As at-home tests become more available, ensuring affordability and insurance coverage will be key to reducing screening disparities.

Men's Public Stigma of Mental Health in the Media and the Implications for Help-Seeking Attitudes
Zachary DeGuzman, Mira Chaffin, Seth Fernando, Matthew Wong

This study examined the impact of media portrayals of depressive symptoms of men on attitudes toward mental illness and willingness to seek professional help among male participants. Drawing on Stigma Theory (Goffman, 1963), we designed an experiment where 60 self-identified male undergraduate students were randomly assigned to view one of three movie clips: an Extreme portrayal of depressive symptoms, a Moderate portrayal, or a Control clip. After viewing the clip, participants answered a series of questions on their willingness to seek professional help, their public stigma toward individuals seeking professional help, and their willingness to associate with the male character. Consistent with our hypothesis, when the male character exhibited extreme symptoms of depression, participants reported significantly more favorable attitudes toward the character seeking professional help than participants who were in the Moderate condition; participants in the Control condition reported the lowest scores. Contrary to our hypothesis, the type of depressive portrayal symptoms did not influence how harshly the participants judged the character. Finally, depressive symptom portrayals changed the extent to which participants were willing to associate with the male character. Participants in the Extreme condition reported the lowest willingness to "hang out" and "be friends with" the male character, while those in the Control condition reported the highest; participants' scores in the moderate condition fell in between. These results suggest that portrayals of the mental health of men can shape awareness of mental health struggles and support-seeking attitudes among men. Implications of these findings for research and practice are discussed.

Menstrual Cycle Phase Impacts: Cognition, Balance and Perception
Tiia Lachance

Despite a universal understanding of the physical symptoms related to the menstrual cycle, the broader cognitive, psychological and sensory impacts of hormonal fluctuations remain under researched and unclear. This literature review examined the effects of hormonal changes during menstruation, specifically in estrogen, progesterone, luteinizing hormones and follicle-stimulating hormones, on a number of different cognitive, psychological, perceptual and sensory functions. The review was built on a study conducted in the previous academic year at Loyola Marymount University and aims to provide theoretical contributions through synthesizing findings across topics such as attention, postural control, interoception, memory, balance and more.

In order to determine a pattern in research, peer-reviewed articles from PsycINFO and PubMed, from the last 10 years, were coded into a spreadsheet. The spreadsheet organized information by menstrual phase and relative subtopic (e.g. cognition). The pattern identified from present researched suggested a phase dependent trade-off: cognitive performance (e.g. attention and memory) tend to show an advantage during the follicular phase, when hormonal levels are stable; while sensory and perceptual functioning abilities tend to decline. On the contrary, during the luteal phase, when hormonal fluctuations are most prevalent, cognitive functioning declines while sensory and perceptual abilities show more of an advantage. These results indicate a complex interaction between the menstrual cycle and daily capabilities. This review ultimately identified a significant gap in current research, further highlighting the need for future studies to examine how hormonal variations throughout the month may impact cognitive and perceptual functioning for women and the potential phase-dependent tradeoffs involved.

Mimesis and the Virus Embedded in Virality

Francis Abradu-Otoo

The scope of this project focuses on the implications of "mimesis" indicated in The Republic by the Ancient Greek philosopher Plato. Mimesis is imitation, and in the context of the book, Plato warns of negative societal impacts if the arts possess morally objectionable content. Plato's solution to the implications of mimesis is censorship, aimed at removing corrupt content from art to prevent the valorization and imitation of such behaviors in society. Rather than fixate on morally objectionable content itself, I think Plato highlights an issue in virality. Virality in the sense that uncritical audiences spread media messages. There is a danger in any kind of artistic production that, either through misinterpretation or deliberate mimicry of deplorable content, harm will spread to broader society. I want to orient this investigation around the world of digital conversation and what happens to information once it becomes viral. What are the real-world implications of virality? Through theoretical texts, either directly from thinkers themselves or academics analyzing them, I'll investigate ideas of semiotics and the nature of signs and reality. Plato, Gilles Deleuze, and Roland Barthes will ground a basis to explicate art/media's relationship with reality. Instances of the problematic implications I'll extract for my analysis will derive from TikTok. TikTok is one of the most potent and contemporary sources of media's dangerous effects on broader society. Various modes elevate morally bankrupt characters and ideas on TikTok. The most recent and striking valorization emerges from Josh Safdie's 2025 film Marty Supreme.

Mind In Motion: A Preliminary Analysis

Alexander Gertler

Gait retraining is commonly used to reduce injury risk and improve running biomechanics by modifying movement patterns associated with excessive loading. While these strategies improve mechanics, the mechanisms underlying these adaptations remain unclear. Therefore, this study examined lower-extremity muscle activation and cortical activity during running with an increased step rate. Five healthy participants (age: 24 ± 8 years; height: 1.67 ± 0.07 m; mass: 64.1 ± 6.6 kg) completed two 15-minute running trials consisting of normal running gait and a 7.5% increased cadence. Surface electromyography (sEMG) sensors were placed

bilaterally on four lower-extremity muscles to quantify muscle activation patterns. Electromyographic outcomes included average electrical output and peak activation measured using root mean square (RMS) and peak EMG values. Electroencephalography (EEG) was also used to assess electrocortical activity, focusing on sensorimotor cortical regions and frequency band power. Statistical analyses were conducted using GraphPad Prism 10.6.1. Preliminary analyses indicated no significant differences between normal running and increased step rate conditions for RMS or peak EMG values across the measured muscle groups ($p > 0.05$). EEG analyses demonstrated reductions in alpha-band power within the primary motor cortex during increased cadence running. Significant decreases were observed for Alpha1 ($p = 0.010$) and Alpha ($p = 0.025$), suggesting greater cortical engagement during gait retraining. These findings provide insight into the neuromuscular and neurocognitive mechanisms of cadence-based gait retraining and may inform future rehabilitation and training strategies aimed at improving running efficiency and reducing injury risk.

Modeling Galactic Rotation Curves Using Newtonian Fractal Dimension Gravity
Isaiah Tyler

Under Newtonian mechanics, the circular velocity of stars in galaxies is expected to decrease significantly as the radial distance increases since the gravitational field strength is inversely proportional to the distance. However, the observed galactic rotation curves approach a constant value at large radii. This discrepancy is commonly modeled by including a dark matter contribution to the mass distribution. Since dark matter has yet to be detected, it is important to also consider alternative models of gravity that model the observed behavior. In this work, we model the rotation curves NGC 3198 and NGC 2403 using the NFDG mass-dimension field equation, which relates the mass distribution of a galaxy to the fractal dimension of the space it occupies. We then employ a new method developed using the Python emcee package to constrain the NFDG mass-dimension equation constants using Markov Chain Monte Carlo.

Money Talks, Democracy Walks: How Billionaires are Reshaping U.S. Politics
Amelie Favre

Money has always played a role in politics. However, its role and the way it is utilized have evolved significantly over time. This research project examines how billionaires are reshaping American democracy and whether their monetary influences operate within or beyond the boundaries of U.S. law. Drawing on Vilfredo Pareto, Gaetano Mosca, and Robert Michels' elite theory to C. Wright Mills's The Power Elite, this project aims to place modern billionaires' political power within a broader historical and theoretical context. Central to this project is the legal precedent established by landmark Supreme Court cases such as Citizens United v. FEC and McCutcheon v. FEC, which blurred the line between free speech and monetary influence in U.S. politics. Using a mixed-methods approach, this project will combine quantitative analyses of spending data, donor networks, and public opinion with qualitative case studies of modern billionaires such as Elon Musk, Peter Thiel, George Soros, Michael Bloomberg, and Melinda Gates. This project aims to find whether billionaire influence in U.S. politics has grown, how the strategies of this influence may have shifted, to what extent it is reshaping American democracy, and how past Supreme Court rulings on campaign finance have enabled or limited this power.

Morality in Politics: Understanding the Role of Moral Socialization in Politics
Khamalia Williams

This study investigates the complex relationship between morality, communication and politics and how one's understanding of morals shapes their political beliefs and voting decisions. Politics is often divided with differences in moral convictions contributing to many political tensions. This research aims to understand moral differences at the individual level among adults with different political orientations and how these differences shape political views. Using a purposive approach to sampling, interviews were conducted over a 4-month period with 13 members of the LMU community. Interviewees were selected based on their political background to ensure that a broad range of political perspectives were included. Participants expressed teachings of morality, mainly stemming from their parents and/or religion, such as "treat everyone the way you want to be treated". However, many were divided over the cause and solution, to social/policy issues such as economic problems, healthcare accessibility, and gun control. While some critiqued factors like worker exploitation, lack of education, and socioeconomic divide as causes to political issues, others attributed individuals such as immigrants or specific constituencies as the root cause of these issues. Due to this juxtaposition in beliefs, there was a high level of cognitive dissonance in participants of all political parties. By examining the effects of people's moral compass on their political decisions, this project may help researchers consider improvements in political and sociological education, which could encourage constituents to vote in a civically responsible manner.

Motor Cortex Activation in College-Aged Adults Exposed to Alcohol-Related Visual Stimuli
Giselle Haddad, Samantha Ortiz-Mclendon, Dyllan Soriano

The motor cortex is connected to regions in the brain implicated in memory, learning, habit, and reward. Exposure to visual stimuli has been shown to activate the motor cortex, encouraging behavior. 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 cortex activation occurs when shown images of people engaged in motor activity (e.g., people drinking alcohol), compared to non-motor related images of alcohol, and non-motor related imagery of neutral items (e.g., rock, fork). Methods: 9 college-aged participants age 21+ were presented with 3 trials of 60 images. Each trial contained 20 images of each stimulus: neutral, images of alcohol without people (NoPeople), and images with people drinking alcohol (People). Using an Antneuro Waveguard net EEG cap, Electroencephalogram (EEG) data was collected and analyzed to determine reductions (ERD) or increases (ERS) in power. Results: Analysis demonstrated a reduction in power relative to baseline. People categories showed the greatest ERD. NoPeople and Neutral categories also showed ERD. Differences in ERD indicate People categories elicited the greatest neurological response when compared to NoPeople, Neutral, and Baseline. NoPeople showed the second-largest effect in neurological response. Conclusion: ERD indicates motor cortex activation occurred and increased when participants were presented with images of motor activity (i.e., drinking alcohol). This activation may encourage or reinforce behavior involving alcohol. Future studies can investigate if the amount of motor cortex activation through motor-related images corresponds with levels of alcohol consumption.

Netflixication: The Rise of Algorithms and Streaming Services and the Decline in the Quality of Film, Television, and Everything in Between

Lily Wood

The quality and cultural value of contemporary film has declined significantly in the era of streaming. Rather than prioritizing creativity or artistic merit, streaming services and production companies increasingly rely on algorithms, viewing data, and trends to determine which projects are greenlit, emphasizing quantity over quality. While streaming platforms have expanded access to independent and diverse films, this is overshadowed by an algorithmic culture that limits what audiences are exposed to, reinforcing familiarity and repetition. This trend is further reflected in the rise of a standardized visual aesthetic often referred to as the "Netflix Look". It's characterized by flat, over-lit, and artificial visuals optimized for home screens. Ultimately, this shift reveals the deeply capitalistic nature of modern media production, where profitability and efficiency take precedence over artistic innovation. For example, the 2005 version of The Devil Wears Prada was shot on 35mm film. For a film about fashion, the vibrant colors and rich contrast from the 35mm format created appropriately tactile and appealing visuals. The 2025 "Netflixified" sequel is a direct reflection of the current digital norm of sterile, flat, low contrast visual style. As a result, the overall cinematic quality or the "aura" of the theatrical experience has given way to at home algorithmic viewing habits. I will be using work by the film theorist Walter Benjamin to demonstrate how mass-produced culture enforces conformity and turns art into a commodity that reinforces existing power structures.

Neural Signatures of Executive Function: An EEG Study in Healthy College Students

Zayad Hyder

Electroencephalography (EEG) is a non-invasive technique used to measure electrical brain activity from the scalp. Its ability to be applied in ecologically valid settings makes it a valuable tool for investigating neural processes. This preliminary investigation examined changes in EEG activity in 15 participants as they completed tasks assessing executive function (EF), high-level cognitive processes in the brain responsible for planning, focusing, and multitasking to achieve goals. Since raw EEG signals cannot directly reflect cognitive processing, the data were filtered into frequency bands corresponding to alpha, beta, delta, gamma, sigma, and theta waves, and analyzed across nine specific scalp locations. Executive function was assessed using the NIH Toolbox, a standardized battery measuring core EF components (inhibition, cognitive flexibility, and reasoning) with established reliability and validity. Understanding EF is crucial as it plays a central role in daily functioning, including academic success. Existing research indicates that gamma activity is linked to attention and memory demands and peaks when integrating individual object features into a cohesive percept. Visual and nonverbal reasoning tasks, which require analyzing, synthesizing, and identifying patterns in visual stimuli, provide a measure of EF, particularly in problem-solving contexts. We found that gamma activity most prominently in the prefrontal, temporal and occipital brain regions exhibits pronounced changes during the more challenging EF tasks (e.g., visual reasoning) compared to other less challenging conditions. Systematic EEG analysis during NIH Toolbox executive function tasks highlights task-related gamma-band changes and offers a promising approach for linking cognitive performance to neural activity.

Neuropsychological Performance Across Domestic and International University Students: The Role of Language Dominance

Alexis Nagler, Sarah Gutknecht, Nicole Won, Lucy Westhusing, Arwen Miranda, Alberto Fernandez

This study examined the effects of language dominance on neuropsychological test performance by comparing domestic and international university students. Research on bilingualism's cognitive effects is mixed, with findings suggesting that factors like language dominance and language of test administration may matter more than bilingual status itself. We aimed to determine whether international students and domestic students differed in performance across neuropsychological tests on the Multicultural Neuropsychological Scale (MUNS). Forty-two undergraduate students from Loyola Marymount University participated, including 35 domestic students and 7 international students who were fluent in English, both bilingual and monolingual. Participants completed the Language Experience and Proficiency (LEAP) Questionnaire and were administered the MUNS, a 45-minute assessment measuring attention, language, memory, executive functioning, visual memory, and constructional praxis, with group comparisons conducted using ANOVA. There were no significant differences between domestic and international students on overall MUNS total scores or most subtests, including memory, attention, visual memory, executive function, and praxis. However, a significant group difference appeared on the Animals subtest, a verbal fluency task, in which domestic students significantly outperformed international students, naming about 10 more animals on average. The findings suggest that international students, whose dominant language is not English, experience specific disadvantages on language-based tasks administered in English while performing similarly on nonverbal and overall cognitive measures. These results indicated that language dominance is the critical factor influencing performance on the MUNS and show the importance of administering neuropsychological assessments in participants' native languages, even when using culturally sensitive tests.

Not All Chicks Eat the Same: Hatch Order and Diet in Great Black-Backed Gulls

Sofia Carranza

Great Black-backed Gulls (Larus marinus) are relatively understudied, especially with respect to intraspecific variation in dietary preferences. Our project's overall goal is to quantify dietary differences 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 analyses reveal significant within-population variation in diet and patterns associated with chick hatch order and developmental stage. We examined feather samples collected in 2022 from 97 hatchlings across 33 nests at a breeding colony in Maine. After sample processing and analysis, we found no difference in the nitrogen stable isotope ratios based on hatch order. However, carbon isotopes showed a difference within the nests, revealing that the A (first-to-hatch) chick has less negative carbon isotope values than the C (last-to-hatch) chick. This suggests that there is biased maternal allocation of nutrients during egg formation, with earlier-laid eggs reflecting a greater contribution of marine-derived resources. In contrast, feathers collected from 72 pre-fledgling chicks in 2019 showed no hatch-order differences in carbon isotope values. Instead, we did find higher nitrogen isotope levels in A pre-fledglings than C pre-fledglings. This reflects either post-hatch parental bias or the competitive dominance of A chicks

during feeding. Ultimately, our multi-year study will compare isotopic variation of repeated samples from the same chicks across the breeding season to further examine when and how these temporal differences in feather isotopes are generated. With this information, we will better understand the diet in efforts to conserve this declining species.

Notions of Latina Beauty Represented in Latina-Owned, Makeup Cosmetic Brands
Lisette Keating-Gonzalez

This project aims to name and contextualize the evolving notions of beauty for Latinas in the United States presented by Latina-owned, makeup cosmetic brands. Contrary to culturally imposed dominant constructions of "Latina Beauty," this project examines how Latina-owned, makeup brands are negotiating dominant constructions of "Latina Beauty." By examining the notions of beauty for Latinas, we can understand the parameters of beauty within which they exist. Beyond desirability, these beauty parameters signal the social positionality of Latinas, the physical and behavioral expectations imposed onto Latinas, and the conditions under which Latinas are valued. Through digital ethnography and critical discourse analysis, with emphasis on scholar Debra Merskin's visual content lens, this project focuses on Latina-owned, makeup brands' products and advertisements to examine the dominant construction of "Latina Beauty." An analysis of Latina-owned, makeup brands' product names and advertisement campaigns reveal a shift away from traditional notions of "Latina Beauty," featuring diversity in models and cultural signifiers. As a result, Latina-owned, makeup brands contribute to the expansion and reconstruction of "Latina Beauty." Investing in more expansive and accurate representations of Latinas, going beyond traditional notions of "Latina Beauty," is essential to reconfiguring the conditions under which Latinas are valued.

Oceanic Flow Efficiency Through Novel eDNA Collection Devices
Matthew DuBois

Marine biologists often use environmental DNA (eDNA) collection methods to passively obtain organismal DNA data from less accessible areas like deep oceans. The transportation of water, used to collect eDNA, is expensive and inefficient. This project provides a novel method that eliminates the transportation of water for eDNA analysis. Previous students designed two membrane holding devices, a sphere and triangular prism, that house a laboratory-grade cellulose membrane, on which eDNA collects when saturated in water. In previous trials, the prismatic membrane holding device, with and without the membranes inserted, was submerged in a laboratory tank, where a mechanical pump was also attached, with micrometer size, neutrally buoyant glass beads inserted into the tank. Trials were conducted with three different flow rates exerted by the pump, mimicking recorded ocean speeds throughout Southern California. Then, a camera and laser sheet were positioned perpendicularly to the tank to illuminate the glass beads, capturing the motion in the fluid. Particle image velocimetry (PIV) was then conducted using open-source software for an analysis of the fluid dynamics to determine the efficacy of the membrane holder. Results suggest that the conic membrane holder is a valid collection device for eDNA, while data collection is ongoing for the spherical device. Easier collection of eDNA data allows scientists to more efficiently determine what creatures are in our oceans, which helps prevent harmful practices like overfishing or

the capture of endangered species. This work shows that novel eDNA collection devices developed at LMU further streamline the eDNA data process.

An Odorless, Benign Alternative to Thiophenol for the Deprotection of Nosyl-Protected Amines
Jackson Spiecker

The o-nitrobenzenesulfonyl (nosyl, Ns) group is a versatile and robust protecting group for amines in multistep organic synthesis. Its routine removal, however, relies on thiophenol or similar aromatic thiols, which are notoriously malodorous, toxic, and present significant practical and safety challenges in the laboratory. To address this limitation, we report the development of an alternative deprotection method employing N-acetylhomocysteine thiolactone (Citiolone) as an odorless, benign thiol source. This work demonstrates the efficient cleavage of the nosyl group from a secondary amine derivative under mild conditions. The thiolactone reagent is activated in situ to generate the requisite thiolate nucleophile, facilitating clean deprotection to yield the corresponding free amine in high isolated yield. This method provides a practical and user-friendly alternative to traditional thiophenol-mediated deprotection, expanding the synthetic toolkit with a reagent that mitigates key health, safety, and olfactory concerns without compromising efficiency.

Optimal Germination Temperature of J. Californica and Hybridization with Non-Native Species
Kathryn McGinnis

Climate change has adverse effects on the fitness of various species. It is essential to investigate which species are impacted and determine the effects on their germination. Juglans californica is a native tree that plays an important ecological role in habitats by stabilizing stream banks and acting as fire breaks (Fitz-Gibbon et al., 2023). However, J. Californica is currently listed as "Near Threatened" on the IUCN Red List of threatened species due to population declines and habitat fragmentation caused by human disturbance, severe weather, and climate change (Barstow & Stritch, 2018). This study investigates which temperature regimes yield the highest germination capacity of J. californica seeds and whether hybridization with non-native walnut species further influences germination success. Controlled germination trials of seeds from different walnut trees under different temperature regimes (5°C, 10°C, and 15°C) were conducted to assess the optimal temperature for germination. Genotyping was also conducted through tissue sampling, PCR, and DNA sequencing to assess the genetic backgrounds of the different trees to determine whether native and hybrid genotypes differ in their germination responses to different temperatures. Germination trials yielded results of 18.69% at 5°C and 17.76% at 10°C, while only 1% germinated at 15°C. Additionally, one tree germinated more than the others, suggesting that there might be a difference in germination success between native and hybrid species. These results demonstrate that lower temperatures correspond with higher germination success, meaning climate change may negatively impact germination, but hybridization could help combat these negative effects.

Osmotic Performance of Mytilus Trossulus Under Hyposalinity Stress

Isabella Yurkanin, M. C. Vasquez

Mytilus trossulus is a species of mussel that is found on the Northern Pacific US coastline. Due to climate change, it is predicted that precipitation will increase, therefore decreasing seawater salinity. This change in salinity could negatively affect marine animal populations if they are unable to adapt. Thus, the aim of our study was to determine the amount of energy expended during osmotic stress exposure of M. trossulus mussels. We hypothesized that lower salinities would decrease metabolic rate due to an increase of osmotic stress that the mussels would experience. We collected mussels from Coos Bay, OR and exposed them to 7 days of various salinity treatments (5, 10, 15, 20, 25, 30, 35, 40 ppt) and after the 7 days metabolic rate was measured. We found at lower salinities (5 and 10 ppt), mussels consumed significantly less oxygen than at intermediate salinities (15, 20 and 25 ppt). This result is likely due to metabolic depression or valve closure when mussels are under hyposaline conditions. With this research, we can develop a better understanding of metabolic responses in mussels and therefore have improved insight into how climate change may affect marine animals.

An Overview of Pottery from Jordan in the Early Bronze Age

Isabella Fernando

Pottery responds to the needs of the people, making them pertinent to the study of daily life and cultural customs of ancient societies. Their longevity and abundance make them ideal candidates for understanding regional typologies and chronological evolution. When a part of society transforms, it often causes ripple effects into other aspects of society like when the Second Product Revolution occurred in the Chalcolithic Period. The aftershocks of this revolution were felt into the Early Bronze Age, allowing for the diversification of food products, and rise in settlement and urbanization during the Early Bronze Age. Both events were critical to the cultural development of Jordan, particularly in their ceramic industry. The demand for ceramics allowed for a diversity in production type that improved the uniformity and quality that allowed for the proliferation and preservation of ceramic materials within the domestic and mortuary sphere.

Paideia and Democracy: From Classical Athens to Modern Civic Education

Chase Haydel

This research examines the formation of paideia, Ancient Greek education, in Classical Athens (508-323 BCE) with particular attention to the democratic society that shaped it. The central question driving this study is: how did Athenian democracy fundamentally structure educational ideals, and how have these ideals been mobilized in later political contexts? This period is often denoted as the dawn of Western Civilization, specifically in regard to education and democratic institutions. I seek to evaluate how Pericles' Funeral Oration in Thucydides' History of the Peloponnesian War (431-411 BCE) perpetuates Athens as the "School of Hellas." By praising Athenian government and civic life as the foundation for their city-state's splendor, Pericles connects Athenians' way of life to education. He frames civic participation in a democracy as essential for a citizen's development, creating a fundamental association between politics and education in ancient Athens. This Athenian framework is revisited

millennia later by Werner Jaeger, a leading Classical scholar in 1930s Germany, who sought to use paideia and its democratic principles as a tool against the rising Nazi party. Although Jaeger's monumental three-volume Paideia series ultimately failed to combat the political descent from a democratic republic to fascism, his attempt remains significant because he fights Nazism with education, specifically an ancient Athenian education. Through these case studies, this paper argues that paideia and democracy are intricately connected, proposing that the democratic and civic ideals embedded in Classical Athens were rediscovered during European Enlightenment and integrated into Western educational philosophy, and continue to inform curricula today.

A Parametric Evaluation of 36 Online Task Scheduling Algorithms

Jason Chamorro

Task Scheduling is an important NP-Hard problem 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 runtime algorithms, called "online." While many offline algorithms have been proposed in the literature, there is far less work on online algorithms. To explore online algorithms, well-known scheduling algorithms designed for the offline model must be modified to work under the online model. By scheduling based on estimations and rescheduling as tasks complete, the established offline algorithms can maintain their defining characteristics and adapt to observed runtime changes in the schedule. Through the use of a parametric scheduling framework, 36 offline list-scheduling algorithms were modified and tested against their naive estimation counterparts. The observed improvements between online and naive approaches are displayed through the isolation of four key variables that define the 36 algorithms, providing a robust and clear analysis of the benefits of online rescheduling across diverse algorithms.

Parking Lot Functions

Jenson Molebash, Chris Porter

This project investigated certain types of mathematical objects we coined as Parking Lot Functions. Parking Lot Functions are a modification of well-known objects known as parking functions, which have numerous connections to fields like computer science and engineering. The aim of this research was to find connections between parking lot functions and other fields of math that could potentially illuminate further connections, applications, or improvements to other STEM fields with a main goal of finding and proving a general formula to count the total number of parking functions of different sizes. Finding this general formula allows us to connect parking lot functions with other mathematical objects that are counted in the same way, further allowing us to explore connections between different areas of mathematics. Once the counts were found and this general formula was conjectured, the links between other parts of math became evident. There is a clear connection between parking lot functions and other numerous mathematical objects such as set partitions, Stirling permutations, binary trees, and more. Findings these connections allow us to make key insights about certain properties of parking lot functions. It is anticipated that further connections and behaviors of these parking lot

functions will bring new insights into their behavior and illuminate new ideas for proving our initial conjecture on the total number of parking lot functions.

Patient-Centered Communication, Trust in Doctors, and Trust in the Healthcare System among LGB Adults in the U.S.

Adrian Casiano

Lesbian, gay, and bisexual (LGB) adults in the U.S. often encounter systemic barriers in healthcare (e.g., discrimination, marginalization), which can contribute to lower trust in medical providers and the health care system. Poor patient-clinician communication (especially dismissive attitudes) may exacerbate these difficulties and discourage LGB individuals from seeking preventive care. While medical mistrust among LGB individuals has received increasing attention, limited research has explored how patient-centered communication relates to trust in both individual clinicians and the broader healthcare system. This study addresses that gap by examining these associations among a national sample of LGB adults. Purpose: Using a subsample of LGB adults (n=418; weighted n=16,887,874) from the 2024 Health Information National Trends Survey (HINTS 7), we tested the pre-registered hypothesis that higher levels of patient-centered communication would be associated with a) higher trust in doctors and b) higher trust in the healthcare system. Method: Multivariable linear regression models were conducted test the study hypotheses. A composite score of 7 patient-centered communication items (e.g., "How often did health professionals help you deal with feelings of uncertainty about your health or health care?") was entered as the predictor, and trust in doctors ("how much would you trust information about cancer from a doctor?"; 1-4 scale) as well as trust in the healthcare system ("how much do you trust the health care system (for example, hospitals, pharmacies, and other organizations involved in health care?"; 1-4 scale) were entered as the outcome variable in separate models, controlling for age, sex, insurance, and sexual orientation subgroup. Results: Patient-centered communication was positively associated with greater trust in the healthcare system (b=0.44, SE=0.13, 95% CI [0.17,0.72]) but not significantly associated with trust in doctors (b=0.27, SE=0.15, 95% CI [-0.03, 0.58]). Individuals aged 65-74 (compared to 18-34) reported higher trust in the healthcare system (b=0.45, SE=0.17, 95% CI [0.11, 0.80]). Conclusions: Among LGB adults, patient-centered communication was positively associated with trust in the healthcare system but not with trust in individual doctors. Future research and clinician training efforts should explore how inclusive, affirming communication may support trust-building across multiple levels of care.

Perceived Stress Influences Cardiovascular Reactivity in College Students

Natalie Younan, Jadyn Ambachew, Manuel Suñé, Leyat Hailu, Caio Victor Sousa

Psychological stress is associated with changes in autonomic and cardiovascular function, possibly contributing to long-term cardiovascular risk. Variations in perceived stress may influence physiological responses to acute stressors, particularly in college students, a population with high stress exposure. PURPOSE: This study investigates whether perceived stress is associated with differences in cardiovascular reactivity to acute stress. METHODS: Fourteen college students (men=9, female=5) completed the Perceived Stress Scale (PSS). Participants were stratified into low and high stress groups using the median PSS scores. Cardiovascular

responses were recorded using a blood pressure monitor (FINAPRES) and EKG during the protocol consisting of a 10-minute baseline, 2-minute cold pressor test (CPT), and a 5-minute recovery period. RESULTS: All participants (n=14) were included in the present analysis. The PSS average was 16.4 for the low stress group and 22.8 for the high stress group. Both groups exhibited significant increases in systolic ($p=0.010$), diastolic ($p<0.001$), and mean arterial pressure ($p<0.001$) during the CPT, followed by decreases during recovery. No changes were identified for HR. The between-group comparisons showed a visual and numerical difference between the groups, although no statistical differences were identified. CONCLUSION: The CPT effectively elicited significant pressor responses in both stress groups. No significant changes in HR were observed, suggesting a predominantly vascular response to acute stress. Although no statistically significant differences were observed, higher blood pressure responses were reported in the higher stress group. Further research using a larger sample size, depression scores, and assessing physical activity levels are warranted."

Physiological Performance of The Mussel Mytilus Galloprovincialis Across Decreasing Salinities

Alyssa Rodriguez, Lainee Irribarren, Hayden Washington

Climate Change (CC) has been a leading cause of abiotic variation within the marine environment and is anticipated to increase precipitation, which may alter seawater salinity. Marine mussels, like Mytilus galloprovincialis, are biological indicators of ecosystem health and could help aid in understanding CC impacts. The objective of our study was to determine the effect of osmotic stress on physiological parameters (metabolic rate, clearance rate [CR], mortality) of M. galloprovincialis sampled from Marina Del Rey (MDR) and Ballona Creek (BC), CA. Mussels (N= 300) were collected from both sites and exposed to salinity stress (5-40 ppt; 35 ppt control) for 7 days before physiological data collection. Results showed prime mussel metabolism at the average ocean salinity (35 ppt) and reduced metabolism under exposure to salinity extremes (5 and 40 ppt). CR declined as salinity decreased for mussels from both sites, showing a strong negative effect of hyposaline conditions on feeding performance. At 5 ppt, CR was decreased by nearly 50% compared to the control. We did not identify a difference in metabolic rate or clearance rate between sites. However, mortality data showed that BC mussels had a 11.8x greater risk of death under 10 ppt exposure than the control while MDR had a 50.9x greater risk of death under 10 ppt. Mortality at 5 ppt was similar between both sites suggesting lower limits to osmotic tolerance. Our study suggests that M. galloprovincialis exposed to hyposalinity will be energy limited and this may influence mussel survival under future climate change scenarios.

Pigment Content in L. Perezii Leaves at Various Stages of Development

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. Digital imaging and RGB color analysis were performed and identified a correlation between R values (strong, positive) and B values (moderate, negative) and developmental markers including stomatal and salt gland densities, indicating a marked relationship between development and color. The pigments associated with the developmental color change were

spectrophotometrically quantified. Following imaging and RGB analysis, pigments were extracted over 24 hours from L. perezii leaves at various developmental stages using ethanol (chlorophylls and carotenoids) or acidified methanol (anthocyanins). The pigment content of each leaf was quantified based on standard wavelengths and absorbances identified in previous studies. Measuring the differences in pigment contents of leaves provides insight into the temporal changes in pigment production, further elucidating the relationship between color and leaf development. Pigment content serves as another measurable developmental change in L. perezii, which may be utilized in conjunction with RGB color values, stomatal densities, and salt gland densities to more comprehensively characterize developmental trajectory of leaves in L. perezii, and perhaps other species that exhibit similar developmental color change.

Plating in the Tombs at Bab Edh-Dhra (Early Bronze Age)
William Kulewicz

For at least the last 90 years tombs at Bab edh-Dhra have been looted and distributed in the Southern Levant. On August 3, 1977, Nancy L. Lapp began communications with the Department of Antiquities which inevitably led to the procurement and display of tomb group A72 NE at Loyola Marymount University. The grave goods from this specific tomb have been studied by its students and faculty to best understand their cultural and regional significance in the broader discussion of the Early Bronze Age Southern Levant. This is valuable because the lack of multi-tiered societies, elite social stratification, and large religious organisation makes Jordan an anomaly in the context of the classical view for city states during the Early Bronze Age. The differences in burial types and grave goods highlight that kin-based groups settling in Bab edh-Drah and Jericho prioritised conformity over regional standards. Homogenous patterns of burials that differ from Bab edh-Dhra to Jericho indicate a preference towards local concerns, resources and environmental changes. Without a hierarchy, the people in these Early Bronze Age sites controlled their own communities in a clan-based society that prevented one segment of the community from gaining absolute control over material and immaterial wealth.

Policing Post Pandemic: Examining Angelenos Trust in Local Police Departments Before and After COVID-19
Mariah Allen

Amidst the height of the COVID-19 pandemic, local policing became the subject of national interest and public scrutiny. Despite historical progress, people of color continue to experience over-policing and police brutality at the hands of local police departments. Given the size and diversity of Los Angeles, the county's local police departments and their relationship to Los Angeles' residents is a model for examining policing more broadly. Using polls of Los Angeles residents, this research will explore Angeleno's changing perception of their local police departments from between 2017 and 2024. This study utilizes 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. The study also included a margin of error that was ±3%. Survey participants were asked to answer the following question: "How much of the time do you think you can trust your police department to do what is right?" Answers to this question were analyzed by the respondent's ethnic

identity. Results revealed that in the years immediately following the pandemic, trust for police decreased across ethnic groups. African American Angelenos' who trust in police most of the time and just about always fell from 44% in 2019 to 34% in 2022. Meanwhile the amount of Latino/a Angelenos who indicated they trust the police only some of the time or none of the time increased by approximately 10% between 2019 and 2024.These findings suggest that racial and political tensions within the pandemic may have impacted perceptions of trust in local policing. Further study may reveal ways to improve perceptions of trust for the Latino/a and African American Angelenos.

Pop Culture and Graphic Design in LMU's 1960s Theatre Playbills

Eva Guillory

One of the longest-running student organizations at Loyola Marymount University is the "Del Rey Players", a student-run theatre company founded in 1932. William B. Hannon Library's Del Rey Players collection highlights this legacy and lets us understand how 1960s graphic design and pop culture influenced university students' hand-drawn playbills. For example, the playbill for Advise and Consent (1968) replicates the 1962 movie poster of Advise and Consent by Saul Bass, an influential designer based in California. Illustrations in The Bat (1970) show stylistic similarities to Earl Newman's posters, whose advertisements could be seen everywhere in Venice Beach, Hermosa Beach, and other neighborhoods minutes away from Loyola University, LMU's predecessor. To learn more about the 1960s illustration styles found on the DRP playbills, I took direct inspiration from The Rhinoceros (1969) playbill to make a poster for LMU Theatre's 2025 production of Escobar's Hippo, both of which are absurdist plays with similar premises. By attempting to copy the illustration and printmaking style of The Rhinoceros, I learned how bold lines, organic shapes, and saturated colors were all elements of art emphasized in California's midcentury modern design. Through research and artmaking, I found that the student designers of the DRP Playbills utilized pop culture references specific to the theatre community, as well as took direct inspiration from popular films, plays, shows, and entertainment posters from other Southern Californian designers and artists.

Potential Effects of Enhanced Serotonin Signaling on Craniofacial Morphometrics

Sarmad Alani

Background Serotonin signaling regulates embryonic processes such as cell division and left-right asymmetry, but its role in shaping neural crest derived facial skeleton is poorly understood. Psilocin (PSI), a serotonin receptor agonist, is gaining increased medical attention as a breakthrough therapy for mental health disorders. Here, we use psilocin treated embryos to determine how disruption of serotonin signaling may alter craniofacial shape and ossification. Method Chick embryos were treated with varying concentrations of psilocin (10, 20, 100 μM) or Ringer's saline as control. We collected chicken embryos on Day 10, when bones are forming in the head and face. Embryos were stained with Alcian Blue and Alizarin Red for imaging to assess ossification. Results Preliminary results suggest that psilocin-treated embryos show changes in craniofacial proportions compared to controls. Embryos treated with 10uM and 20 uM PSI exhibited larger head dimensions while embryos treated with 100uM PSI showed more overlap with controls. Initial Alizarin red staining of controls and 100uM PSI-

treated embryos showed ossification of the lower jaw (dentary and jugal) and otic capsule, with more pronounced ossification in control embryos. Additionally, treated embryos exhibited a delay in development compared to controls. Conclusion / Future Directions Preliminary results suggest that disrupting the serotonergic system during early development alters craniofacial shape in chick embryos in a dose dependent but variable manner, consistent with the potential role of serotonin signaling in regulating craniofacial patterning. Ongoing Alcian Blue and Alizarin red staining will help analyze changes in both cartilage and bone formation, respectively.

The Potential Use of Generative AI Technologies in the Work of Female-Led NGOs to Redefine Peacekeeping: A Focus on the Russia-Ukraine War

Madison Wallace

Artificial Intelligence (AI) technology has gained momentum in recent years. The potential of AI technologies continues to advance, demonstrating prospective utilizations in a variety of fields. This includes AI's presence in war and war technology. AI has been especially critical for the defense strategies leveraged in the Russia-Ukraine War. But how can we use AI to positively impact human rights during war? Non-governmental Organizations (NGOs) and Inter-governmental Organizations (IGOs) are fundamental groups that provide humanitarian aid in zones of conflict. Female-led NGOs and the feminist lens offer a revolutionary way to shape permanent peacekeeping efforts by emphasizing human rights and sustainability. Together with generative AI technologies, local female-led NGOs can redefine what peacekeeping can look like in an active zone of conflict. I propose three policy recommendations that emphasize AI-assisted feminist peacekeeping to achieve a sustainable future with an emphasis on human rights for Ukraine.

Predictors of Academic Performance in Students Enrolled in Health and Human Sciences Courses

Giselle Haddad, Samantha Ortiz-Mclendon, Dyllan Soriano

College students face numerous neurocognitive and psychological challenges that play a critical role in shaping their academic paths. PURPOSE: This study investigated several factors associated with academic performance, including exercise, food security, sleep, anxiety, substance use, depression, and anxiety to assess the relationship between student lifestyle and overall academic outcomes. METHODS: 104 college students in HHSC 1550 completed a survey administered in the Spring 2026 semester. Predictors of overall academic success, including exercise, sleep, food security, depression, anxiety, and substance use, were assessed. RESULTS: Positive correlations were found between academic performance and the following variables: food security, sleep, exercise. A negative correlation was shown between academic performance and the following variables: alcohol consumption, drug use, anxiety, and depression. CONCLUSION: Overall, findings highlighted that all of the studied factors may have an impact on student achievement. Therefore, various interventions can be created and implemented to increase academic success through each of the variables. Future studies can be done to compare current rates of HHSC students with patterns from previous years or national statistics.

Pseudomonas Koreensis as a Plant Growth Promoting Rhizobacterium

Alexandra Probst

Plants once covered the southern California beaches, resulting in the stabilization of sand and thus coastal dunes, which are a valuable ecosystem. Reestablishment of native dune plant species, which would promote the restoration of our local coastal dunes, might be helped with the use of Plant Growth Promoting Rhizobacteria (PGPR). In this study, bacteria were isolated from the rhizosphere of plants, including California poppy, miniature lupine, and beach evening primrose, which had been grown in sand collected from the Santa Monica dunes, LAX Dunes, and the El Segundo Sand Dunes. A bacterial species that was found in multiple locations and associated with multiple plants is Pseudomonas koreensis, previously identified as a PGPR. A series of PGPR assays performed over multiple years in the BIOL 112 lab showed that Pseudomonas koreensis has a variety of plant-growth promoting features, including nitrogen fixation, salt tolerance, and exopolysaccharide production. Further analysis of these results shows that the PGPR properties of Pseudomonas koreensis do not vary by location or by the plant the strain was isolated from. Further testing through plant growth assays of beach evening primrose showed that primrose seeds inoculated with Pseudomonas koreensis resulted in plants with greater shoot height compared to those that were uninoculated. From these biochemical and plant assays, it can be concluded that Pseudomonas koreensis is able to help plants grow and therefore has potential to be used to restore the beach's dunes and ecosystems.

Public Sentiment Towards AI on Reddit: Evidence from Lexicon-Based and Deep Learning Models

Sofia Moskaleva

Casual observation of social media posts suggests there are strongly polarized opinions about recent developments in Artificial Intelligence (AI). To provide empirical evidence for this polarization, I conduct sentiment analysis on Reddit posts using three tools common in the literature: lexicon-based models (VADER and TextBlob) and a deep learning-based model (BERT). These models classify posts into negative, neutral, and positive sentiment categories. In addition to providing empirical analysis about sentiment towards AI on Reddit, I also explore discrepancies between the three sentiment analysis tools based on their performance on a hand-labeled subset of posts.

The Quest for God: Cult in the Early Bronze Age

Margaret Chaney

This paper examines religion in the Early Bronze Age Levant through religious architecture and imagery. This area of the Ancient Near East experienced political development that was notably different from the structured, hierarchical society of their neighbors in Mesopotamia. Instead, a heterarchical and egalitarian society developed during the Early Bronze Age. Amidst these political developments, large, fortified towns emerged, as well as a more stratified and organized society with agricultural developments, resource control infrastructure, and the beginnings of organized religion. There is overall a notable lack of material culture from Early Bronze Age temples that is related to their role in society. In the egalitarian society of the EBA, temples were not yet the

powerful social institutions that they became starting in the Middle Bronze Age and were not related to a religious elite, yet cult and religion certainly played an important role in society. This paper will investigate the beliefs and cultic practices of the period by looking specifically at architectural remains and cult paraphernalia from Megiddo, Khirbet Zaraqun, and Bab edh-Dhra, and compare this evidence with an iconographical study of cult items including cylinder seals and the Megiddo 'Picture Pavement.'

Quantifying Invertebrate Biodiversity in High-Density Urban Restoration Sites in East Los Angeles

Nicholas Genovese, Logan Lewis

Development in urban settings often leads to habitat degradation and fragmentation, it is also disruptive to the native ecosystems, eventually causing reduced biodiversity. This study aims to resolve invertebrates' biodiversity loss through the use of micro-habitats, specifically micro-forests and micro-grasslands. A micro-forest is a small-scale forest that is densely planted using the "miyawaki method" to encourage high-speed growth in a short amount of time using competition between native plants. Similarly, a micro-grassland is a densely planted plot of native grasses and shrubs. Ascott Hills park in east Los Angeles contains both a micro-forest that is 10,000 square feet, planted winter of 2023-2024, as well as a 5,000 square foot grassland, planted winter 2024-2025. Biweekly surveying was completed on both the micro-forest and micro-grassland as well as their controls using sweepnetting. Sweeping involved 4 sets of sweeps 50 sweeps each per plot, collected invertebrates were photographed and identified to the lowest taxonomical level. Preliminary results show that on average the micro-forest boasts 13.5 different taxa each survey, the micro-grassland 13.43 different taxa, meanwhile the control plots each had 5.93 different taxa. These findings suggest that native micro-habitats could help to support insect biodiversity and mitigate fragmentation in urban areas. Next steps involve investigating the relationship between micro-habitat structure and invertebrate ecological roles. By comparing these areas to control plots, we will determine the extent to which these habitats prioritize and sustain native biodiversity.

Quantifying Nitrogen Compounds in Aquatic Environments Using Ion Chromatography

Angeline Dangca, Zoe Zidon, Izzy Tu

Eutrophication is a major ecological issue where an excess of nutrients causes a rapid increase in algae that covers the surface of water and blocks oxygen and light to the organisms living under it. Nitrogen is one of the key nutrients prominent in starting such a process, thus understanding and quantifying nitrogen levels within aquatic environments is critical for monitoring the potential risk of eutrophication. This project aims to quantify, analyze and compare nitrate (NO_3^-), nitrite (NO_2^-), and ammonium (NH_4^+) in environmental samples (collected from rainfall events, the Ballona Wetlands, and the Del Rey Lagoon) using ion chromatography (IC) with the Dionex Inuvion IC System. Multiple standards at different ion concentrations were created either focusing on one ion or utilizing a 7-anion standard that includes both nitrate and nitrite. IC results were proven to be more effective in accuracy and precision compared using other quantification methods like HACH and UV-Vis spectrophotometry. Rainwater samples showed high variability in nitrate and nitrite concentrations, with early samples reaching up to 1.73 ppm before declining, likely due to the degradation of reactive nitrogen species over time. In contrast, Ballona Wetland samples consistently showed higher nitrate levels (2.5–3.0 ppm),

suggesting possible nutrient input from urban runoff or sediment. IC provides a precise and reliable quantification, though its accuracy depends on timely sample analysis. This study highlights the importance of proper sample handling and preservation and proposes future improvements in dry deposition sampling and phosphorus monitoring to further advance nitrogen analysis in aquatic systems.

Quantifying the Impact of Stem-Loop Length on the HTLV-1 Gag-Pro Frameshift Efficiency
Nigel Outley

Imagine reading a book, and halfway through, the words shift to the left by one letter revealing a completely new story. A programmed -1 ribosomal frameshift (-1 PRF) results in a similar experience for a ribosome, inducing stalling, allowing it to slip and translate in an alternate reading frame. Human T-cell Leukemia Virus Type 1 (HTLV-1) exploits this mechanism between the gag and pro-open reading frames, allowing it to produce viral proteins that aid in viral proliferation. The HTLV-1 frameshift site contains a heptanucleotide slippery sequence and spacer followed by an 11 base-pair long stem-loop. The specific features of the stem-loop that influence a frameshift are not fully understood, nor is its mechanism. Studies of HIV-1, another retrovirus utilizing –1 PRF events, have shown that when the length of its stem-loop is halved, inhibition of A-site tRNA binding and ribosomal translocation both decreased. Although not measured in that study, it is expected that these would decrease the HIV-1 frameshift efficiency. In this study, I will investigate how the length of the HTLV-1 stem-loop impacts –1 PRF by measuring the frameshift efficiencies for two truncated stem-loop mutants (SLMs). If the stem-loop affects the ribosome similarly to the truncated HIV-1 stem-loop, the truncated 8 base-pair stem-loop should inhibit A-site tRNA binding and ribosome translocation to a lesser degree. In our experiments, this difference was determined using a dual-luciferase assay. Preliminary results revealed that decreasing the stem-loop length of HTLV-1 decreased the frameshift efficiency, in line with the hypothesis. Verifying the quantification of this difference in the frameshift efficiency between the wild-type and truncated stem-loop mutants will create a clearer picture of how stem-loop length influences -1 PRFs.

Race and Recovery: Where Do We Go from Here?
Eden Mehrotra

I conducted field observation and literature review for my initial data collection. I attended multiple Alcoholics Anonymous and Narcotics Anonymous meetings in Leimert Park, a predominantly Black neighborhood, toured multiple Black-owned wellness businesses, and reviewed literature on Black mental illness and recovery. I identified several barriers that Black Americans in recovery may face, including chronic stress from atmospheric racism and increased accessibility of alcohol and controlled substances. I also found a lack of not only scholarly research on Black American collegiate recovery, but also of recovery resources that acknowledge the uniqueness of navigating recovery from substance use or mental illness as a student of color. While Loyola Marymount Center for Collegiate Recovery's staff is over-representative of LMU's Black student population by 9.41%, limited available data suggests that Black students' participation in collegiate recovery is relatively low in the U.S.A. Based on these findings, I developed the following research questions: In a designated collegiate recovery space, what barriers might there be to a Black student's recovery? How may those barriers be broken by

members and leaders of that designated recovery space? I formulated a semi-structured interview protocol, and I will soon interview several students, faculty members, and professionals from external networks. Every member of my sample will have either direct or indirect involvement with collegiate recovery. My presentation will highlight key findings and conclusions from this interview data. This interview study aims to inform leaders and staff of collegiate recovery programs in efforts to make recovery resources more accessible and supportive of Black students.

Radical-Humanistic Institutionalism IR Theory—Reimagining Neoliberal Institutions to Improve the Upholding of Human Dignity and Flourishing

Jonathan Wallace Myers

This paper presents a thought experiment on the nature of the international system and explores possibilities for its improvement and reconstruction. Grounded in two distinct lines of inquiry of (1) how state dynamics influence state actors to conduct themselves in an interconnected international system. (2) Considering how hegemony and realism create combative and competitive dynamics in the anarchy of the international system, is there a way to elevate international relations beyond such outdated and unproductive dynamics? The realist foundation of international relations prioritizes the security of states over the security of individuals. This focus shapes even the most human-centered neoliberal institutions, such as the United Nations, the International Court of Justice, and the International Criminal Court. Currently, the rise of far-right populism is gripping the Western world. As a result, many institutions created by state actors no longer effectively support human rights. Humanitarian issues and countries such as the newly recognized Palestine, the Democratic Republic of Congo, and Sudan are being sidelined by hegemonic power dynamics within neoliberal institutions. These dynamics are rooted in the realist ideology that underpins the international system and inhibits human flourishing and survival. This paper proposes a shift toward a more humanistic-communal approach to geopolitics, aiming to protect human rights even when state actors violate human dignity to gain an advantage in the anarchic international system.

Reconstructing Aura: Spectacle, Stardom, and Presence in Contemporary Cinema

Logan Hoover

This research project examines the contemporary meaning of "aura" in film culture, a term that has recently reemerged in online discourse to describe moments of spectacle often labeled as "hype." Traditionally, Walter Benjamin defined aura as the unique presence and authenticity of an artwork tied to its historical and material existence, arguing that mechanical reproduction in photography and film diminished this quality. While this concept has been central to film theory for decades, and still describes a real phenomenon, current audience usage suggests that aura has taken on a new form. This project investigates how and why this shift has occurred. The specific focus of this research is to understand how contemporary cinema constructs a sense of aura through formal techniques such as spectacle, excess, star performance, and embodied sensory experience. If Benjamin argued that film weakens aura, why do modern audiences still perceive certain cinematic moments as powerful, immediate, and "auratic"? Previous research star images, and cinematic excess separately, but few studies directly connect these ideas to contemporary interpretations of spectacle driven "hype moments." By analyzing

films like George Miller's Mad Max: Fury Road and S. S. Rajamouli's RRR, I aim to examine how aspects like practical stunt work, and star presence generate intensity and presence on screen. I draw on Richard Dyer's concept of the star image and Linda Williams' work on bodily response and excess. Through research I argue that modern cinematic aura emerges from constructed spectacle, performance, and affect. I wish to bridge classical film theory with contemporary viewing culture and fandom, offering a new framework for understanding how audiences experience power, presence, and meaning in modern cinema."

Recruitment as Contradiction: Deterrence from Blackness & Failed Proximity into Whiteness
Ethan Carter

Contemporary research on the policing of Latina/o communities in Los Angeles often adheres to two patterns: concentrating either on Latina/o bodies as subjects of police violence or the 20th century as a period that enabled such policing. My research diverges by interrogating the LAPD recruitment strategies of Latina/o Angelenos as an intentional effort to create distance from Blackness and secure proximity to whiteness. I examine the trajectory of LAPD recruitment strategies from the past ten years to determine how these institutional shifts influence policing outcomes and state-sanctioned violence. Evaluating digital marketing campaigns and the LAUSD cadet program through the lens of Afropessimism demonstrates how policing enacts structural violence within humanity as a social construct, in which 'nonhumanness' is inherent to Blackness. I argue that Latina/o officers engage in a 'possessive investment in whiteness,' a transition that directly impacts policing outcomes, including officer-involved shootings and other forms of state violence. Utilizing archival research from Los Angeles city records, independent research institutes, and LAPD promotional materials, I reveal how the rhetoric of multiculturalism is weaponized to mask persistent anti-Black violence. The department emphasizes diversity as a reformative tool to distance itself from its violent legacy, but the creation of a 'school-to-police pipeline' suggests a deeper commitment to the protection of whiteness and deterrence from Blackness that is tied to inhumanity. Ultimately, this critique strips away the mask of multiculturalism, contributing to the broader discourse on police abolition by exposing recruitment as a site of racialized social engineering.

Red, Blue, and on the Move: The Political Implications of Interstate Migration in the US
Edward Snyder

In recent decades, a prominent trend has emerged: massive outflows of migrants from traditionally Democratic states like California, New York, and Illinois, and inflows into Republican states such as Texas, Florida, and Arizona. My paper argues that the factors driving this mass relocation carry political consequences that shape the contemporary US political landscape. Using original survey data from individuals who moved or considered moving within the past ten years, the project analyzes the factors influencing these relocation decisions and identifies the most prominent ones. It also investigates how migration towards republican states influences individuals' partisanship, political preferences, and voting behavior. Based on survey data, I expect the cost of living to be the key factor influencing migration from blue to red states. I also forecast that Democratic migrants moving to red states will tend to adopt more Republican-leaning views. In contrast, Republican migrants will mostly keep their political beliefs but become more engaged in political participation. Lastly, I believe that tax

burden will be the primary factor for individuals whose political ideologies change after migration. This research contributes to the literature on American political behavior and sheds light on how population movements reshape electoral dynamics in the US.

Reframed not Dismantled: Mother Blame in Disability, Genetics, and Memoirs
Morgan Keating

This project examines how mothers have been historically positioned as responsible for their child's disability, following the shift in mother blame from psychoanalytic ideologies to genetic and epigenetic narratives. Drawing on interdisciplinary scholarship in disability studies, sociology, and feminist studies, I analyze three interconnected forms of maternal responsibility and blame: the "refrigerator mother" theory that framed autism as the result of being emotionally withdrawn and cold, broader cultural expectations of intensive and self-sacrificing mothering, and emerging discourses that positions risk within mothers' bodies through genetics and one's prenatal decisions. Along with this literature, I analyze disability memoirs written by mothers of children with intellectual and developmental disabilities, highlighting lived experiences of guilt, self-scrutiny, and the pressure to pursue extensive intervention methods. These narratives reveal how structural blame becomes internalized, influencing mothers to become advocates and "heroes" while simultaneously reinforcing ableist ideals of cure and normalization. I argue that although explicit psychoanalytic mother blame has become less common, responsibility has been reframed rather than dismantled: mothers are not only blamed primarily for causing disability through genetic and epigenetic frameworks, but are increasingly held responsible for fixing, managing, or preventing it.

Rehabilitating the Juvenile Justice System
Shreeya Sahasrabudhe

According to the Bureau of Justice Sentencing, in 2021, approximately 24,894 youths were held in juvenile facilities, detention centers, and youth prisons. Examining the juvenile justice system can illuminate the impact of incarceration on American youth. Most sentencing for juvenile offenders is punitive and seen as a consequence for harm committed. On the other hand, rehabilitative approaches to sentencing take an individualized approach to managing and minimizing undesired outcomes. This past summer, I interned at Loyola Law School's Juvenile Justice Clinic and engaged in direct legal work, representing youth through judicial proceedings and observing adjudications and dispositions. This hands-on experience allowed me to see firsthand the factors that influence sentencing decisions and outcomes for young offenders. Over the course of my 12-week internship, I conducted research analyzing how the justice system sentences juveniles and exploring the implications of punitive versus rehabilitative sentencing. Through this research, I hope to uncover insights that could help answer why the juvenile justice system continues to rely heavily on punitive measures, despite prior research demonstrating that rehabilitative approaches more effectively reduce rates of recidivism.

The Relationship Between a Footballing Organization and it's Latine Fans

Paolo Mah y Busch

Many sport organizations have an outward perception that they are integrated into a community and fully engage with that community's culture. My project is focused on whether sports organizations, in this case Los Angeles FC, are truly part of the community while still being a capitalist organization. To find an answer, I will study multiple angles of the organization and use frameworks from authors such as George Lipsitz and Priscilla Leiva. I will focus on physical histories, such as the creation of the stadium, understanding if the organization and the ones who run it are supporting culture through what they finance or through platforming the community, and finally I will try to understand the ways in which fandom creates platforms, even if not directly through the club. The main methodology that I will be using would be a discourse analysis through social media to better understand the more subjective feelings toward the clubs. I will use this to review podcasts, posts, and forums where opinions are openly shared on the supporter's feelings of how the organization is being used. In this research I do conclude that LAFC, like many other sport organizations, do in fact use culture for profit, with varying degrees of support of the community. However, LAFC, whether intentional or not has created a space to hold conversations of discourse which inevitably platforms a culture centered fandom.

Restoring and Evaluating the Ecological and Thermal Performance of the Life Science Building's Green Roof

Kyle Wright

In 2023, Professor Tatiana Kuzmenko and students began restoring Loyola Marymount University's Green Roof atop the Life Sciences Building to create a sustainable rooftop meadow that supports biodiversity and campus community life. The roof's shallow volcanic rock-based substrate posed challenges for plant establishment and water retention. This was addressed through consultations with industry professionals and experimental trials of fertilization methods, irrigation schedules, and Southern California adapted plant species tolerant of full sun and limited soil depth. These efforts resulted in a mixed-planting strategy that produced dense vegetative cover, improved moisture retention, and effectively suppressed weeds. This poster will document the restoration efforts, as well as present methodologies to quantify on-roof animal biodiversity using sweep-netting and pitfall traps. The poster will also assess changes in soil composition through comparative nutrient analyses. Finally, the poster will evaluate the urban heat island mitigation of the green roof by comparing surface temperatures of the vegetated roof with an adjacent control white roof under comparable conditions.

Reviving Trust Through Participation: How Student-Led Polling Engages Young Researchers and Reaches Registered but Unlikely Voters

Maricia Marquez

In an era of declining civic participation and trust in polling, the process of data collection itself can serve as a vehicle for civic engagement. When survey research feels impersonal, trust in both data and institutions erodes. To explore how participation can rebuild this trust, the Center for the Study of Los Angeles (StudyLA) at Loyola

Marymount University conducted a project modeled on a "Get Out The Vote" (GOTV) initiative ahead of the 2024 Presidential Election. From October 10 to November 4, 2024, StudyLA paired quantitative polling with a modified GOTV effort targeting low-propensity voters via phone, email, text, and mail (N=30,000+). For the phone portion, LMU Political Science students were trained in research design and community outreach ethics. Sixty-five students made over 800 hours of calls to more than 10,000 respondents. Turnout analysis showed that 12% of the control group (no contact) voted in the 2024 election, compared to 17% among those contacted by student callers, a statistically significant difference. StudyLA also observed differences in voting propensity across demographic groups: 3–6% by age, 3–8% by political affiliation, 5–7% by gender, and 2–20% by race. Personalized outreach, especially through phone calls, showed high correlation with increasing turnout among unlikely voters. This project demonstrates that public opinion research, when used as a participatory educational model, can both measure civic life and revitalize it among younger populations.

Rise in Native Vegetation & Rare Endemics Following Coastal Dune Restoration in Manhattan Beach, CA
Tayler Minter, Nicole Darley, Rebeka Shamis

Restoration of coastal dunes is an effective approach in increasing native vegetation to promote local biodiversity and environmental resilience. Manhattan Beach, California, has long practiced beach grooming, a practice that impairs native vegetation growth. Starting in January 2022, dune restoration efforts, including the removal of invasive plants and the planting of native vegetation, were implemented along three acres of Manhattan Beach. Monitoring was performed via randomized transects and quadrats to estimate the percent cover and species types of native vs. non-native vegetation. Before restoration efforts began at Manhattan Beach, non-native species dominated, with a relative percent cover of 26.9% in 2020 compared to just 0.9% for native plants. By 2025, native vegetation's relative percent cover increased to 41.0%, and non-native species dropped to 0.2% cover. Rare endemics, such as red sand verbena (Abronia maritima), exhibited notable recovery. Restoring these dunes promoted local biodiversity and protected endemic species by increasing their available habitat, including the endangered El Segundo blue butterfly (Euphilotes battoides allyni) dependent on restored native sea cliff buckwheat (Eriogonum parvifolium). These results indicate the effectiveness of restoration efforts in shifting dune vegetation composition from non-native dominance to native dominance.

The Rise to Formula One: Underrepresented Athletes and Success in Inaccessible Sports
Jayesh Damaraju

Thousands of underrepresented athletes around the world struggle to achieve success in their desired sport. Especially if the sport is largely inaccessible to the average competitor, it becomes much more difficult to reach the highest level. Studying culturally and financially inaccessible sports and the difficulties marginalized groups may face when pursuing it will shine a light on the struggles these athletes have to overcome to accomplish their dreams. I intend to focus on Formula racing, an expensive European-based sport traditionally dominated by Caucasian members from the continent. Since 1950, only 12 non-European drivers have ever won the F1 title (Irimia 1). Through this study, I will learn about the process of reaching Formula One, the highest form of international motorsport, and create a documentary that focuses on an Indian racer's journey to that point. I will

discover the social, emotional, and physical obstacles he must face daily as he makes headway in the racing community. I hope to offer research that helps give an understanding of how hard it may be to reach the highest form of any sport and the dedication it requires to get there. In addition, I wish to tell his story to inspire people that they do not have to conform to a stereotype. Whether people feel constricted by societal pressure, family limitations, or their financial constraints, his story shows that it is possible to achieve one's dreams.

The Role of Coastal Dune Protection in Enhancing Carbon Sequestration in Manhattan Beach, CA
Nicole Darley

Coastal dunes offer an abundance of ecosystem services, including biodiversity enhancement, protection against shoreline erosion, and carbon sequestration, which is the focus of this study. These benefits are diminished by frequent grooming and recreational use of the beach that disturb coastal dune systems. The Bay Foundation's restoration sites, including the Manhattan Beach study area, are roped off from the public, ensuring minimal disturbance to the dunes in these areas. This protection, along with frequent removal of non-native vegetation by The Bay Foundation, allows for greater sand accumulation and more native vegetation, which is hypothesized to promote carbon sequestration of the dunes. This study compares the amount of carbon stored in sand from protected dune areas with that of adjacent, frequently disturbed, unprotected dune areas. To assess this, sand is cored along protected and unprotected dune transects, and each sample's total organic carbon content is analyzed. Results are expected to reveal significantly higher total organic carbon levels in protected dune areas compared to unprotected ones. These findings will support coastal dune restoration as a cost-effective, nature-based carbon storage strategy for urbanized areas.

The Role of Political Misinformation in Bolstering Racial Domination
Mariah Allen

The hysteria around Critical Race Theory and the White House insurrection the following year have sparked dialogue around the concept of misinformation. Mounting concerns around where and how people receive information and the reliability of their sources have become salient questions for political discourse. Although it has been historically consistent that governing institutions, media, and politicians are prone to lie and withhold information according to convenience, these instances of spreading falsehood receive far less attention. Current discourse surrounding misinformation largely treats the phenomenon as relatively new and unique, however this narrative discounts the racial politics of information. The concept of misinformation ought to be reframed to be inclusive of the historic and ongoing role of race in the politics of information. Examining present and historical case studies through Du Boisian and Millsian frameworks reveals that misinformation functions within a continuum of falsehood that perpetuates racial domination which ultimately amounts to policy by way of our democratic system. Disconnecting misinformation from incidents of racial exclusion weakens the pursuit of addressing falsehoods with holistic truth.

The Role of Self-Conscious Affect, Neuroticism, and Gender in Independently Predicting Sense of Belonging

Amanda Williams, Christie Shum, Christina Mau, Maire B. Ford, Timothy J. Williamson

Sense of belonging is shaped by emotional processes and personality characteristics. Self-conscious emotions (e.g., shame, guilt) are relevant during emerging adulthood and may influence how students perceive their belongingness within academic and social environments. Neuroticism is a personality trait characterized by heightened negative affect and has been associated with greater self-consciousness, which may further undermine a sense of belonging. However, less is known about how self-conscious affect and neuroticism relate to belonging, both uniquely and jointly, and whether these associations differ by gender. Purpose: To examine whether self-conscious affect and neuroticism independently predict sense of belonging and to explore potential gender differences in these associations. Methods: N=196 undergraduate students completed validated questionnaires on neuroticism, sense of belonging, and their self-conscious affect. Data collection is complete, and planned analyses include correlations and a multivariable linear regression examining neuroticism, self-conscious affect, and their interaction as predictors of belonging, with gender examined as a moderator. Anticipated Results: We hypothesize that higher levels of self-conscious affect and neuroticism will independently be associated with a lower sense of belonging. In a multivariable model, we anticipate that self-conscious affect will remain a significant predictor of belonging, whereas the relationship between neuroticism and belonging will be attenuated. We anticipate that the negative associations between neuroticism, self-conscious affect, and belonging will be stronger among women than men. Conclusion: This study is expected to clarify the contributions of self-conscious affect and neuroticism to sense of belonging and inform the development of interventions that address maladaptive responses to negative events.

Runoff Meets Restoration: Quantifying Storm Drain Input of Microplastics into a Restored Eelgrass (Zostera Marina) Habitat

Casey Curtis, Sarah Joy Bittick

Salinas de San Pedro Salt Marsh in San Pedro, CA, is a soft-bottom habitat that supports the seagrass Zostera marina, or eelgrass, a species vital in stabilizing sediments, enhancing water clarity, and providing habitat for marine invertebrates and fish. Due to its location within Los Angeles Harbor and proximity to two major storm drains, this site is potentially vulnerable to the impacts of urban runoff, including the deposition of microplastics (degraded plastics <5mm). Our study aims to examine how microplastic concentration in sediments varies with rainfall events and eelgrass abundance. Specifically, the question posed is: How does eelgrass (Zostera marina) abundance and time since precipitation influence the amount of microplastic in marine sediments? Fieldwork includes eelgrass health and local biodiversity surveys along six total transects within the marsh as well as the retrieval of sediment samples. Sediment samples are processed and analyzed in a laboratory setting for microplastic content and classification. Microplastic abundance is expected to be positively correlated to increasing eelgrass presence and proximity to precipitation events. Together, this data will offer insight into the transport and presence of microplastic pollutants in increasingly urbanized coastal regions."

Seagrass Structure as an Indicator of Carbon Sequestration Potential in San Pedro

Logan Nguyen, Brook Rosten, Stephen Cummings

Seagrass meadows play an important role in coastal ecosystems by supporting marine biodiversity and helping remove carbon from the atmosphere. The ability of seagrass to sequester carbon is closely tied to meadow health, which can be assessed using structural indicators such as shoot height and shoot density. This study examines changes in seagrass health in San Pedro, California by measuring percent seagrass cover, shoot density, and maximum shoot height across two sites from 2023 to 2025, with the goal of linking these patterns to measurements of carbon storage using sediment loss-on-ignition (LOI), which is related to seagrass abundance and structure. Seagrass structure varied strongly across both sites and years. The deeper, more marine influenced site (33°42′50.1876″ N, 118°17′3.4368″ W) consistently supported greater seagrass cover and density, with peak values observed in 2024, followed by a decline in 2025. In contrast, the shallow, estuarine site (33°42′50.7564″ N, 118°17′7.0404″ W) showed lower overall seagrass presence and experienced a drop in cover, density, and shoot height by 2025. Across all samples, percent seagrass cover was positively related to both shoot density and shoot height, indicating that these metrics together provide a robust measure of seagrass health. These results demonstrate substantial site-based differences and yearly changes in seagrass condition in the San Pedro region. By establishing clear patterns in seagrass structure, this study provides a strong basis for ongoing sediment analyses using LOI to evaluate how changes in seagrass health may influence carbon sequestration potential in the coastal port.

Seasonal Stability of Plant–Animal Networks in Restored Dunes

Connor Schmit, Emilio Plascencia-McCort

Biodiversity—the variety and richness of life on Earth—has declined in many ecosystems due to habitat loss, environmental degradation, and pollution, among other factors. Restoration of native plants is a common ecological practice that is expected to enhance biodiversity by improving habitat quality and ecosystem resilience. We monitored a coastal dune ecosystem restored by the Bay Foundation, a non-profit organization that works to conserve Santa Monica Bay, to determine if an increase in native plant abundance also increases biodiversity at other trophic levels: insects and arachnids (arthropods). Surveys were originally conducted during summer 2025 and were extended into fall 2025 to assess seasonal variation in plant–animal interactions. We implemented a point-count surveying method both in the restored (managed) dunes, and in the adjacent unrestored (unmanaged) areas to construct plant–animal interaction networks. Plant and insect species were identified using photographic identification applications, with assistance from members of The Bay Foundation. Restored dunes supported higher plant and animal diversity and a greater number of interactions than unmanaged dunes. Analyses across seasons revealed shifts in plant–animal interactions from summer to fall; however, restored sites consistently maintained more complex and connected networks across seasons. These results indicate that native plant restoration enhances biodiversity and supports stable plant–animal interaction networks through seasonal change, contributing to increased resilience of coastal dune ecosystems.

Sex Differences in the Association Between Health-Related Functioning and Short-Term Relapse During Early Sobriety

Joshua Dasilva

Although prior research has linked health and relapse risk, the role of health-related functioning during early sobriety in predicting short-term relapse has been less well examined. The current study examines whether baseline health-related functioning predicts relapse over a one-month follow-up period and whether these associations differ by sex. Participants (N = X) completed a baseline survey after reporting at least three days of sobriety. At baseline, participants reported their sobriety date and completed the RAND-36, which was used to assess physical and emotional health. Participants reported their sobriety date again at a one-month follow-up to determine relapse status. Logistic regression analyses will be used to examine the main effects of physical and emotional health on relapse, as well as sex as a moderator of these relationships. It is hypothesized that greater health-related limitations, particularly in emotional and role functioning, will be associated with higher odds of relapse, and that these associations may vary by sex. Understanding how health-related functioning relates to relapse risk during early sobriety may help identify individuals who could benefit from additional support during the early stages of recovery.

Sex-Specific Changes in PBMC Mitochondrial Respiration Following Acute Exercise

Ryan Moon

Introduction: Exercise-trained individuals exhibit greater immune system function, which may be attributed in part to enhanced peripheral blood mononuclear cell (PBMC) function. Exercise training is a potent stimulator of mitochondrial adaptation, which may help explain improvements in immunity. However, the mechanisms by which exercise acutely modulates PBMCs to promote beneficial adaptations remain unclear. The purpose of this study was to test the hypothesis that a single bout of aerobic exercise modulates PBMC mitochondrial function. Methods: Twenty-eight healthy young adults (13 females, 15 males; age 21.84 ± 2.78 years) completed a graded exercise test (VO_2max: 41.4 ± 7.64 ml $O_2 \cdot kg^{-1} \cdot min^{-1}$) followed by 30 minutes of cycling at 50% of maximal aerobic workload (132.78 ± 38.9 W). Blood was collected pre- and post-exercise. PBMCs were isolated, counted, and assessed for mitochondrial respiratory capacity using high-resolution respirometry. Paired t-tests compared respiratory states pre- and post-exercise, and unpaired t-tests assessed sex differences. Results: Acute exercise increased Complex I-supported State 3 respiration in females (pre: 8.81 ± 2.27, post: 10.73 ± 3.40 pmol $O_2 \cdot s^{-1} \cdot 10^{-6}$ cells; p = 0.035), but not males (pre: 10.64 ± 3.61, post: 9.28 ± 2.60; p = 0.122). Females exhibited a greater relative change than males (25.36 ± 38.95% vs. –7.81 ± 25.86%; p = 0.017). Complex I+II-supported uncoupled respiration also increased in females (p = 0.033), but not in males (p = 0.221). No significant correlations were found between exercise intensity and respiratory changes. Discussion: These findings demonstrate that acute aerobic exercise enhances PBMC mitochondrial respiratory capacity in females, but not males, suggesting a sex-specific bioenergetic response. The effect was most prominent at Complex I, indicating differential reliance on NADH-linked pathways. This pilot study highlights PBMC mitochondrial function as a potential non-invasive marker of acute exercise responsiveness. However, modest sample size, lack of fitness-level controls, and assessment of only acute responses limit generalization. Future work should include larger,

more diverse cohorts, evaluate PBMC subtype composition, and investigate whether these acute responses predict long-term adaptations.

Silent Citizens: How Self-Censorship Affects Political Behavior
Logan Venhoff

American politics is undeniably polarized. Political disagreements negatively affect interpersonal relationships, and individuals may wish to avoid these disagreements by strategically shaping their political behavior to appear more socially acceptable. How does self-censorship affect political behavior in such a polarized climate? Using the ANES 2020, the ANES 2024, and a novel survey, this study analyzes how individuals' willingness to self-censor influences political expression and participation. I expect that an increase in self-censorship is associated with a decrease in political expression and participation. This study will thus contribute to existing literature on American politics by 1) measuring how self-censorship affects the partisan nature of political expression and participation; 2) investigating the frequency of political expression between family members and friends versus acquaintances; 3) addressing differences between public and private political participation modes; 4) examining the relationship between self-censorship and political behavior across racial/ethnic and partisan groups; and 5) exploring this relationship in the current political climate.

Skin Elasticity Assessment Device for Hand Reconstructive Surgery
Amelia Palacios, Sofia Deek, Aarna Veera

Skin elasticity assessments have been applied widely in plastic surgery applications. One application is to use skin elasticity to determine the size and shape of a skin flap in reconstructive surgeries. Current clinical assessments of skin elasticity are often based on a pinch test to subjectively estimate it or to average measurements reported in the literature. The lack of patient-specific data limits the accuracy of preoperative planning, as individual variations in skin elasticity are not accounted for using current assessment methods. To address this, this project focuses on developing a cost-effective, non-invasive device to quantitatively measure skin elasticity for plastic surgery applications. An Arduino-based prototype was designed and partially fabricated using a 3D-printed structure integrated with a Laser Range sensor to measure the height of skin deformation during suction, which will be used to calculate quantitative indicators of skin elasticity. To validate the feasibility of the device, preliminary data were collected using the Cutometer, a commercially available and clinically established device for measuring skin elasticity. The collected data will be used to compare against measurements obtained from the prototype. Due to the challenges of achieving a leak-free suction with a compact mechanism, iterations have been conducted to optimize the design and enhance measurement reliability. In the long term, the device has the potential to provide a novel, quantitative method for assessing skin elasticity, which could benefit surgical planning and patient-specific treatment strategies.

Smart Gloves

Nathaniel Pierre-Louis, Salvador Ruiz, Victoria Hernandez

Patients with limited hand mobility on one hand, such as those recovering from fractures, burns, or surgical procedures, often face difficulties in performing essential rehabilitation exercises. This is because rehabilitation for these patients typically involves manual therapy led by physical therapists, and individuals differ in their ability to perform exercises. The rehabilitation plan requires continuous communication between patients and physical therapists to adjust exercises by modifying the intensity and strength needed which is labor-intensive and time-consuming. To deliver a more efficient solution, we aim to develop a pair of smart gloves that can capture the movements of the unaffected hand and replicate those movements on the hand in need of recovery. Patients can undergo rehabilitation on the affected hand by self-regulating and controlling movements with their unaffected hand, using a glove to ensure personalized training. As a preliminary project, the focus is on prototyping a glove design to achieve grasping motion and fabricating it using 3D printing, which can be then modified into two gloves: one that receives data from the unaffected hand and another that drives motion for the affected hand. This prototype is a 3D printed hand plate with five 3D printed fingers that are used to replicate hand motion. The fingers are attached to holes in the hand plate which one may rotate with sliding their fingers through the Velcro. This approach has the potential to improve rehabilitation efficiency, reduce clinical workload, and increase patient access to consistent and customized hand therapy.

Social Justice in Action: Mapping Soil Contaminants From the 2025 Los Angeles Fires from the Community Action Project's (CAP.LA) Test Results

John Kassabian

Following the Palisades and Eaton fires in January 2025, the Community Action Project Los Angeles (CAP.LA) led soil testing efforts across over 3,000 properties to assess contamination, inform policy, and provide free testing to affected homeowners. In the absence of comprehensive testing by local, state, and federal governments, researchers from UCLA and StudyLA at LMU analyzed thousands of samples to understand post-fire soil conditions. This project aims to provide spatial analyses and visualizations for the most vulnerable communities. As samples are tested, the data is mapped on ArcGIS Online to display whether the area is above or below the testing threshold for the 18 metals tested. These visualizations show the unequal distribution of soil contaminants, namely arsenic, lead, and thallium. This project extends beyond just the data – it is a testament to the importance of grassroots organization and mutual aid to our neighbors in need. Mapping provided critical details of post-fire soil conditions and highlighted the role of localized environmental testing in recovery, the importance of data sharing, and the benefits of "doing with not for." The independence and impact of this work were especially meaningful as a member of the L.A. community. Throughout my work, I've gained insights into the struggles, hopes, policy frameworks, and recovery efforts that follow devastating urban fires. Further, the spatial analysis helped democratize the data and empower residents, governing bodies, and policymakers to make informed decisions about the health and safety of the region.

Social Media and the Cinematic Experience: Motivations, Engagement, and Sharing

Sevilla Chapman

The rise of streaming platforms has altered how audiences watch and engage with films. As a frequent cinemagoer, my personal experience with movie theatres motivated me to do this research. The recent Netflix merger with Warner Brothers pushes the unwavering future of the movie theatre experience as new movie releases are slowly turning to streaming. Despite these challenges, movie theatres still cultivate an impact with audiences and create high revenue as attendance and purchases are still relatively high. This research examines how social media integrates and enhances the movie theatre experience for moviegoers before, during, and after. This project is a theoretical and practical contribution to the field of communications and media studies. The method for this research will survey active moviegoers. For this research, I will use theoretical frameworks of social capital, Uses and Gratification theory, and expectancy value theory. Since survey data has not been collected yet, there are no primary data results. This research will determine if social media enhances and integrates movie goer's personal experience around the movie theatre experience and why even in a streaming dominated era of entertainment, watching movies in cinemas still holds cultural relevance and audience appeal.

Social Media Engagement and Willingness to Engage in Telehealth Services among Depressed Young Men with Limited Healthcare Utilization

Raul Rivera III

Young adults use social media at historically high rates, yet paradoxically report greater social isolation compared to non-users. Men are less likely than women to seek both physical and psychological healthcare, but prior research suggests their willingness increases when they perceive other men engaging in care. This dynamic—rooted in social learning theory —may also operate within social media environments. Importantly, young men who are actively engaged in health-related social media may be especially receptive to telehealth services, as technology-mediated care could carry less stigma than in-person visits. It is therefore critical to examine whether depressed young men who are not currently receiving care, but who engage socially online, demonstrate greater willingness to participate in telehealth services Purpose: To examine whether greater social media engagement is associated with higher willingness to use telehealth services among young men (aged 18–40) in the U.S. reporting clinically significant depressive symptoms (i.e., PHQ-4 scores above 3). Methods: We analyzed data from the 2024 Health Information National Trends Survey (HINTS) Cycle 7, using on a subsample of young men with elevated depressive symptoms (n=31; weighted n=2,430,086). A multivariable linear regression tested whether health-related social media engagement ("how often did you interact with people who have similar health or medical issues on social media or online forums?"; 1-5 scale) predicted willingness to use telehealth in the future ("how willing are you to do a telehealth visit in the future if one is offered to you?" 1-4 scale), controlling for insurance status and race/ethnicity. Results: Social media engagement was not significantly associated with willingness to use telehealth services ($b = –0.36$, $p = .079$, 95% CI [–.76, .04]). Neither insurance status nor race/ethnicity were significantly associated with willingness to use telehealth (all $p > .05$). Conclusions: Willingness to engage in telehealth did not differ by level of social media engagement among young men with depressive symptoms. This suggests that factors beyond online engagement (e.g.,

stigma, masculine norms) may better account for variability in telehealth interest. Future research should evaluate these explanatory variables to inform strategies that promote telehealth as an accessible approach to addressing high levels of depression within this population.

Sommelier Training of an Artificial Nose as an Educational Tool

Lauren Crumb, Larissa Negom

Rapid and accurate detection of gaseous compounds is extremely valuable in the food and beverage industry, particularly for highlighting notable features of complex solutions. Wine, for instance, is a notoriously intricate mixture evaluated by sommeliers for its key aroma, flavor, and visual qualities. In this study, we train an electronic nose (Cyranose 320) to act as an instrumental sommelier capable of identifying aromas in wine samples. When exposed to an aroma, the Cyranose 320 generates a unique electronic response characteristic of that scent. Repeated exposure produces similar responses, establishing a consistent signature. Using machine learning algorithms, these signatures are compiled into training sets for each aroma family. Once trained, the electronic nose is tested on both individual and complex aroma samples to evaluate its accuracy in real wine media. Upon testing, the trained nose shows strong potential for identifying key scent profiles in wine. This project as a whole demonstrates the accuracy of the Cyranose 320 in identifying aromas in complex media but also proposes a framework exposing undergraduate students to analytical chemistry and machine learning through an approachable lens.

Spatial and Temporal Regulation of pilA Gene Expression During Rhizobium–Legume Symbiosis

Isabella Pezo

"**α**-Rhizobium are nitrogen-fixing soil bacteria that symbiose with legume plants. In exchange for providing the plant with biologically usable forms of nitrogen, the rhizobia are housed within root nodules and are fed carbohydrates. This project explores the timing and regulation of pilA1 and pilA2 gene activation during symbiotic root nodule infection. These genes are essential for pilus formation, which facilitates bacterial motility and attachment. Previous findings show that deletion of these genes disrupts the infection process, suggesting their importance in this symbiotic interaction, yet little is known about the regulatory signals that control their activation. This study aims to determine when, where, and under what conditions pilA genes are expressed. To investigate this, a lacZ promoter-reporter fusion system was used to track pilA expression visually via blue staining. The reporter system was introduced into four Sinorhizobium meliloti strains (wild-type and infection-deficient mutants) in order to perform three main assays: (1) culture filtrate assays to test for quorum-sensing involvement, (2) plant signal exposure assays using root exudates and root extracts, and (3) biofilm assays to assess activation during surface attachment. Additionally, Melilotus alba (white sweet clover) plants were inoculated to observe in planta gene expression. Following inoculation, nodules formed on host plants were analyzed to assess pilA gene expression in planta. Gene expression levels were quantified across the different assays, allowing for comparisons of pilA activation under varying conditions. Together, these analyses provided insight into how pilA1 and pilA2 are regulated during symbiosis and helped clarify their role in root nodule infection."

Statistical Evaluation for California Reducing Disparities Project

Yayra Gbagbo, Jaida Andrews

The California Reducing Disparities Project is a statewide mental health initiative designed to improve the psychological wellbeing of five historically underserved populations in California: African American, Latinx, Asian Pacific Native Islander, American Indian/Alaskan Native and LGBTQ+ communities. Within each of these priority populations, seven community-based organizations, called Implementation Pilot Projects (IPPs), were selected by California to demonstrate the effectiveness of community-driven solutions. This study investigated to what extent the IPPs reduced mental health problems for their communities. To assess changes in mental health, IPPs collected data pre- and post-intervention from participants using surveys developed by researchers in the Psychology Applied Research Center (PARC) at LMU. These surveys used five outcome measures. Two, the Kessler 6 and Sheehan Disability Scale, are well-known and widely used psychological distress and functioning measures. Three more, relating to cultural protective factors and social isolation, were developed by PARC scientists. Multiple and multi-level regression analyses were conducted using differences in pre- and post-intervention outcomes. Independent variables included age, race and ethnicity, sexual orientation, gender identity, COVID timing, and current mental health service use. Significant improvements were seen in all five outcomes. Overall, the findings suggest that the culturally responsive and context-specific mental health interventions used by the IPPs provide meaningful mental health improvements.

Strategic Task Duplication: Balancing Communication Overhead in Distributed Computing Networks

Matias Martinez

Efficient task scheduling in heterogeneous distributed systems remains a critical challenge, particularly when communication delays between processors significantly impact performance. Traditional scheduling algorithms like HEFT (Heterogeneous Earliest Finish Time) and CPoP (Critical Path on a Processor) assume each task executes exactly once, which can lead to suboptimal schedules in communication- intensive environments. This work explores task duplication as a mechanism to reduce inter-processor communication overhead by strategically executing selected tasks on multiple processors. We extend HEFT and CPoP within SAGA, an open-source Python framework for scheduling research, to support task duplication. Our approach identifies tasks with multiple successors as duplication candidates and implements a heuristic that evaluates whether the communication savings from duplication outweigh the computational overhead of redundant execution. This heuristic compares average communication costs against average computation costs, ensuring duplication occurs only in situations where it is more likely to provide a net benefit. Through comprehensive experiments across varied network topologies and communication-to-computation ratios (CCR), we demonstrate that intelligent task duplication can effectively reduce makespan in communication-heavy workflows. Unlike naive duplication strategies that indiscriminately replicate tasks, our approach balances the trade-offs between eliminating data transfer delays and excessive computa- tional redundancy. We provide comparative analysis of HEFT and CPoP with and without duplication, offering practical insights into when and how task duplication benefits distributed scheduling. Our im- plementation and findings contribute to the broader understanding of

task duplication strategies and provide actionable guidance for practitioners working with heterogeneous computing environments.

The Study of Basalt in the Early Bronze Age
Ryan Bazyouros

My paper explores the use and manufacture of basalt in the Southern Levant during the Early Bronze Age. In particular, it investigates the types of tools and vessels made from basalt along with their consumption and exchange. In particular, the paper will use evidence from Bab edh-Dhra (Jordan) and other archeological sites from the Southern Levant to discuss the manufacture and uses of vessels both in domestic and funerary contexts. The paper will also explore parallels in shapes and possible function between basalt vases and more common ceramic vessels.

Sullivan Lab: A Cultural Study of the Herpes Simplex Virus
Brady Allison

My research role was under Dr. Mairead Sullivan's project on the herpes simplex virus (HSV). Each student in the lab worked with different data, with my focus being CDC Morbidity and Mortality Weekly Reports (MMWR). I was seeking to answer whether the CDC's language around the herpesvirus trended toward neutral, urgent, inflammatory, or otherwise, in service of the project's larger question about cultural attitudes and patterns surrounding HSV and other sexually transmitted diseases. I engaged with the CDC's digital archive, gathering 150 documents that were both weekly reports and supplements to the weekly reports. These were catalogued by date, author, supplement or weekly report, and keywords. I used sentiment analysis to search for patterns in the language the CDC used to provide information. In general, the language tended to be less neutral than hypothesized, but further research is required. My work will assist Dr. Sullivan in writing a book that will be a valuable source of information on the culture surrounding HSV and sexual health. This is crucial, as the implications can help with understanding social stigma and how it impacts public health policies.

Synthergy: Social Deduction and Deception in LLM-Powered Agents
Lauren Campbell

Synthergy is an online social deduction game designed to enable comparative analysis of how large language model-powered agents engage in social deduction and deception under conditions of asymmetric information. Inspired by social deduction games such as Town of Salem, Throne of Lies, and Mafia, the game consists of two factions, Harmony and Discord, to which agents are secretly assigned. Agents must infer others' affiliations through dialogue, in-game abilities, and voting behavior. To evaluate agent behavior, we conducted 100 simulated games across three agent types: a random baseline agent (RandomSynth), an LLM-based agent that can make decisions based on personal logs created during the game (Synth), and a chain-of-thought agent that augments the initial LLM calls with additional prompts to approximate causal reasoning (CoT Synth). Each test game consisted of a seven-agent configuration, with five agents assigned to Harmony and receiving no

information about other agents' affiliations, and two agents assigned to Discord that possessed shared knowledge about their faction's members. Performance was measured in terms of win rates for each faction, voting accuracy, and ability successes. Simulation data demonstrate differences in performance metrics between LLMs empowered with CoT and those without. Building on these results, the project introduces a custom AI agent with causal reasoning for comparative evaluation against the LLM-powered agents. We position this work as a research platform to further the study of deception mechanisms, social deduction, and causal reasoning in multi-agent AI systems.

Taxidermy and Technology: A History of Climate Change Exhibitions at 20th- and 21st-Century American Museums of Natural History

Laura Haushalter

My research is on the history of temporary and permanent climate change exhibitions at natural history museums in the United States. My primary research question is: How have natural history museums responded to human-caused environmental destruction through their exhibitions, and what, if anything, are natural history museums doing now to address our current environmental crisis? My research begins with a historiography of natural museums and examines how early 20th-century museums responded to a sense of environmental crisis and widespread threats of species extinction. In the early 20th century, museums shifted from Victorian-era glass cases to modern and artistic dioramas that presented beautiful and pristine wilderness. These new dioramas attempted to inspire audiences to care about the environment and preserve wilderness that preservationists presented as disappearing. 21st-century museums are again changing their displays to address climate change, environmental justice, and extinction, this time using different technologies. I explore four specific museums, their histories, and how they are addressing the threat of climate change: the Field Museum of Natural History, the Natural History Museum of Los Angeles County, the Harvard Museum of Natural History, and the American Museum of Natural History. My research brings into conversation museum history, climate communications, and environmental history, while fitting into the larger scholarly conversation of the cultural and political role of American museums. My approach to this topic is new because I am recognizing that the public presentation of natural history itself has a history, and climate change fits into what is considered a "difficult history."

Theorizations of Heidegger's Time-Space and Their Epistemological Quandary

Jack Richardson

Time-space is first mentioned by Heidegger in Contributions to Philosophy (of the Event), and then later thematized once more in his 1962 lecture "On Time and Being." The concept undergoes an evolution but remains closely tied to key notions such as the clearing, Ereignis, Being, presencing, and Dasein. Accordingly, it carries great scholarly import and has seen renewed interest in recent years, being employed in discussions on scientific discoveries (e.g. deep time and quantum mechanics), beingless [entities], as well as questions regarding Heidegger's late epistemic stances. However, Heidegger's esoteric treatment of time-space and lack of systematicity in his late philosophy leaves much room for interpretive difficulties. In this paper, I explore whether the attempts to bring time-space towards beingless [entities] are successful, or rather well-stated, from

an exegetical standpoint. I argue that the hermeneutical difficulties expounded are primarily due to unclear formulations of the epistemological position from which we theorize time-space.

"There's (Black) People Living Under the Stairs": A Black Marxist Analysis of Black Horror Cult Films in the 1990s and Geographies of Despair in Horror Spatial Imagery

Isis Gullette

Research Question: How do Black cult horror films from the 1990s reflect themes of economic struggle, geographies of despair, & racial oppression in economic policies (i.e. trickle-down economics during the Reagan Administration) at the time? Abstract This paper examines how Black cult horror films of the 1990s use genre conventions to critique racial capitalism and expose the spatial and economic dimensions of systemic anti-Blackness in America. Through close analysis of Candyman (1992), Tales from the Hood (1995), and The People Under the Stairs (1991), I conduct a content analysis focusing on four intersecting thematic categories: racial capitalism, geographies of despair, state violence vs. resistance, and monstrosity. This approach explores how these films visualize the exploitation of Black labor, represent economic inequality through decaying urban infrastructures, and depict "the ghetto" as a racialized zone of containment and governmental neglect. I analyze how state power is depicted as monstrous through representations of poverty, police brutality & incarceration, and surveillance, while also attending to moments of resistance where Black characters challenge or subvert dominant power structures. Monstrosity itself becomes a symbolic framework through which systemic forces (i.e. racial capitalism, systemic racism, state abandonment) are rendered visible and as viscerally threatening as supernatural forces. Drawing on theories of racial capitalism (Robinson), Black geographies (Bledsoe), and the horror spatial imaginary (Saylor), my analysis treats these films not merely as entertainment but as political texts that map the psychic and material effects of Reagan-era economic policies and racialized spatial governance. This study contributes to broader conversations about how horror can function as a radical site of critique, memory, and refusal in Black cultural and artistic production.

Toward the Total Synthesis 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 to 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. However, complications arise in the form of numerous side products when the proline-anthranilic acid dipeptide is coupled to the tryptophan subunit. A doubly fluorinated model system and a modified proline-anthanilic acid dipeptide were prepared to evaluate the conditions for this novel coupling. Efforts to convert the obtained linear tripeptide to psychrophilin F via macrolactamization are underway. This presentation will describe our efforts toward the final cyclization of psychrophilin F.

Towards the Synthesis of Albicidin

Sophia Gonzalez

Antibiotic resistance has become a growing public health issue; some bacteria have been found to be resistant to all currently available antibiotics. There is a need for new antibiotics to combat this antibiotic resistance. Isolated from Xanthomonas albilineans, albicidin is strongly bactericidal against a range of gram-positive and gram-negative bacteria and has the potential to be a novel clinical antibiotic. Albicidin consists of five major aromatic fragments and an asparagine residue bonded together through five amide bonds. Previous procedures for the chemical synthesis of albicidin require that each of its hydroxyl groups be protected and involve long stepwise linear sequences that reduce overall yields. We aim to shorten these sequences by avoiding the use of protecting groups through the use of chemoselective amidation reactions. To date, the western half of the compound has been synthesized in two large fragments: an alpha-methyl 4-hydroxycinnamic acid bonded to an aryl p-aminobenzoate and an alpha- amino-3- cyanopropanoic acid bonded to tert-butyl p-aminobenzoate. Tactics for the construction of the homodimeric eastern fragment consisting of, two densely functionalized amino benzoic acids, are under investigation. This poster will discuss the efforts used to synthesize the western half, the amide bonds between them and progress towards the eastern half of albicidin.

Trade and Imports in the Southern Levant

David Vargas

This is an examination of trade and import systems in the Southern Levant during the Early Bronze Age, emphasizing the role of interregional exchange in shaping economic organization, social hierarchy, and the emerging political structures. Drawing on archaeological evidence from settlements, cemeteries, and material culture, including imported ceramics, prestige goods, shells, and metallurgical remains, the study situates the Southern Levant within broader networks connecting Egypt, Transjordan, and the Mediterranean coast, as well as northern Levantine regions. Particular attention is given to burial assemblies from sites such as Bab edh-Dhra, which reveal both widespread access to imported goods and relatively limited social differentiation, suggesting decentralized and regionally varied exchange systems. The paper argues that Early Bronze Age trade in the southern Levant was characterized by a mosaic of localized networks rather than a single centralized system. Exchange routes such as the Jordan Valley and coastal plains functioned as major corridors facilitating the movement of commodities, technologies, and symbolic goods. Evidence for asymmetrical trade patterns, most notably the northward distribution of southern goods and the limited southward movement of northern ceramics, indicated uneven regional influence within these networks. Egyptian interaction during the Early Bronze II-III periods further demonstrates how long-distance exchange supported the consolidation of elite authority, the circulation of prestige items, and the establishment of trade outposts. By synthesizing settlement patterns, mortuary evidence, and archaeometallurgical data, this highlights the Southern Levant's role as both a participant and an intermediary in Early Bronze Age exchange. The findings illustrate how trade and imports were central to the development of social complexity, urbanization, and economic resilience in the region during the third millennium BCE.

Traditionalism, Protectionism, and Political Mobilization on X: A Content Analysis of Potential Patterns Across Authoritarian Regimes

Erin Roy, Serena Louie

With the global rise of authoritarianism and simultaneous integration of social media into daily life, authoritarian leaders now have a larger capacity to spread information, opinions, and ideas to both national and global audiences. This research considers authoritarian regime leaders' posts on X to explore potential patterns despite extensive regime differences. Through a content analysis of three authoritarian regime leaders' X accounts, Victor Orbán, KP Sharma Oli, and Ali Khamenei, we develop and test a theory about the values that authoritarian leaders emphasize in their online communication. By observing various authoritarian regime leaders' X posts, we hypothesized that there would be three relevant themes: traditionalism, protectionism, and political mobilization. We assessed whether posts extracted from a six-month period contained these themes, coding each tweet yes or no to determine if the theme was present. We found that authoritarian leaders often use social media to spread traditional values but rarely use it to spread political mobilization. In all three cases traditionalism was present, with Viktor Orbán and Ali Khamenei having relatively high percentages (14.57% and 14.36% respectively). By contrast, there is less evidence for political mobilization being present. Our findings suggest that authoritarian leaders use social media to emphasize traditional ideals to support their regime. Further research can include examining whether this result is consistent across more regimes and longer time frames.

Traffic Stops and Policing Profits: Analyzing the Connection Within Florida

Leilani Field-Ridley

With over 23 million people, Florida has a very diverse population, but their state and federal prison population does not mirror the state's demographics. Despite Black individuals making up less than 15% of Florida's total population, the Black population composes nearly 50% of the prison population, suggesting that this group is heavily overrepresented within the prison population. Using data primarily from the National Campaign of Prison Phone Justice, Data USA, and the Stanford Open Policing Project, this study examines the relationship between race, Florida's free and incarcerated populations, traffic stop outcomes, and policing profits–with a focus on phone call rates–in hopes of revealing trends within Florida's incarceration system in the year 2016. To do so, a thorough investigation across Florida's five counties with the most traffic stops was performed, employing the Chi-Squared Test of Independence to reveal racial disparities between the incarcerated and general population, as well as race and various traffic stop outcomes. An elaborate analysis of each tests' residuals was also conducted, highlighting substantial differences between the way various races are represented in prison in comparison to the general population. This study's findings ultimately suggest bias within Florida's policing and incarceration system, reflecting a need for reform to ensure equitable treatment across prisons.

The Tree of Life: How a Forgotten Synagogue in Greece Became a Symbol of Resilience
Madeline Wilson

Etz Hayyim Synagogue stands as the last remaining display of the two-thousand-year-old history of the Romaniote Jewish Tradition in Greece. Tucked away in the streets of the Venetian port of Chania, Greece, Etz Hayyim Synagogue serves as a case study for historical resilience, memory work, and community reconstruction. This project uses first-hand reporting as a medium to examine the synagogue's revitalization following World War II and the Holocaust, depicting the transition of the synagogue from a structural ruin to a living cultural and religious space. Through a pursuit of narrative journalism and public history, storytelling was explored as a tool for preserving cultural heritage. The majority of research for this study was conducted through long-form narrative journalism and first-hand immersive reporting. Methods include on-site reporting at the synagogue in Chania, observing daily operations, and interviewing the director of Etz Hayyim, volunteers, and the community's rabbi. These first-hand accounts were used in combination with a historical study of Romaniote Jewish Traditions and the Holocaust in Greece to contextualize the postwar efforts of cultural restoration. An ethnographic framework, combined with memory work, was used to integrate life experiences with historical study. Etz Hayyim transformed from a World War II ruin into a living memorial that provides educational, religious, and historical foundations for the community. This long-form piece demonstrates the effectiveness of historical and cultural preservation through an active and sustainable model of memory work.

Trust, Place, and Resistance: The Impact of ICE Raids on Latino Political Attitudes
Kristal Salazar

This study will analyze the effects of the 2025 Immigration and Customs Enforcement (ICE) raids on Latino residents' political attitudes and their migration patterns. Theories of political behavior, such as linked fate, influence my investigation on the ways experiences with ICE shape trust in government institutions and impact decisions about whether to stay or leave their communities. Using a quantitative research design, I will survey 1,000 Latino U.S residents, collecting data on direct and indirect interactions with ICE, levels of political trust, perceptions of safety, and residential preferences. I hypothesize that the raids will diminish trust in government while simultaneously strengthening community ties, leading Latinos to remain in place and respond through increased political engagement. Latinos' history of lower political participation makes this research valuable for understanding how major events reshape political attitudes and community unity.

Understanding the Experiences of LMU Honors Students
Yasmin Kim

Using Bronfenbrenner's Ecological Systems Theory and intersectionality framework, this mixed-methods study examines the experience of imposter phenomenon (IP) among students in a University Honors Program. IP is characterized by persistent self-doubt, fears of being exposed as a fraud, and compensatory overwork that may result in psychological distress and burnout. In addition, prior studies document that experiences of IP may be influenced by racialized and gendered social dynamics. To that end, this study also investigates whether

intersecting identities further shape University Honors' students IP experiences. Although data collection is ongoing, the current sample consists of diverse University Honors students (N = 53), with 41% self-identifying as first year students, 48% as White-identifying students and 63% as women. Participants completed a survey assessing Honors classroom experiences, interactions with peers and professors, perceptions of inclusion within the Honors Program and the broader university, and whether they have experienced discrimination. Using various analytic approaches such as multiple regressions and analysis of variance, we will explore (1) The nature of IP experiences among Honors students, as indicated by responses to the Clance Imposter Syndrome Scale (Clance & Imes, 1978) and student's perceptions of their own skills relative to their peers, and (2) The role of race/ethnicity and gender in shaping the nature of IP. Qualitative response will be analyzed using a thematic analysis to explore how students describe their sense of community and belonging within the Honors Program as well as the role of race/ethnicity and gender in shaping the formation of community and interpersonal bonds within high-achieving academic spaces, ultimately providing insight into how they make meaning of their educational and social experiences. In tandem, the findings have the potential to shed light on how intersectional factors shape IP within high-achieving academic contexts, as well as how students' self-perceptions may influence peer interactions, sense of belonging, and integration within broader academic systems.

Understanding the Hidden Faults Surrounding the 5.2 Magnitude Earthquake in San Emidio

Nil Bertran Garcia

The August 7th, 2024, magnitude 5.2 earthquake north of the Tehachapi mountains south of Bakersfield, California, was not sourced from any known active fault. Additionally, in this region there are several large oil and gas fields that overly the epicenter location of the earthquake. In this project we aim to model the geometry of the hidden fault to understand the maximum magnitude of earthquake this fault can produce and if oil and gas production triggered this event. In this project, we identify and model new mapped faults and refine interpretations of previously identified faults. This model is based off of oil and gas wells from CalGEM, relocated seismicity, 2D seismic reflection and structure contour map data. With the wells digitized, we analyze the 2D seismic reflection data and interpret important geological layers. Additionally, by segmenting on our relocated seismicity, we identify specific clusters. Then, using SURF, a 3D fault modeling method, we build a detailed model of the faults. By conducting the above activities, we reveal a certain set of hidden faults discovered by external data. Finding them will benefit the community by estimating what the next earthquake's maximum magnitude can be. Additionally, this model will enable other studies to understand the impact of oil and gas production and wastewater injection has had on these faults. It is hypothesized that sequestering chemicals/water for oil and gas wells can lead to stress on the fault and possibly cause hazardous outcomes, which are significant because these outcomes can potentially affect our environment and infrastructure.

Understanding the Role of the HTLV-1 Gag-Pro Frameshift Site Stem-Loop Thermodynamic Stability in Programmed –1 Ribosomal Frameshifting

Neftali Rocha-Martin

The Human T-Cell Leukemia Virus (HTLV-1) is a retrovirus that infects around 10 million people worldwide. Its genome includes the gag-pro frameshift site. This site contains a heptanucleotide slippery sequence, a spacer, and an 11 base-pair stem-loop structure which contribute to a programmed –1 ribosomal frameshift (-1 PRF). In this process, the ribosome slips back 1 nucleotide and then continues translation in an alternative reading frame, allowing production of viral proteins. Little is known about the role the gag-pro frameshift site stem-loop has in promoting the –1 PRF. Previous studies on HTLV-2 gag-pro frameshift site showed that when the thermodynamic stability of its stem-loop was decreased, its frameshift efficiency was also decreased. Given the high sequence similarity between the two sites, we hypothesize that the HTLV-1 gag-pro stem-loop's thermodynamic stability is critical to the function of –1 PRF. To test this hypothesis, a stem-loop mutant (SLM) with decreased thermodynamic stability relative to the wild-type stem-loop was designed. If the hypothesis is supported, the SLM should produce a lower frameshift efficiency than the wild-type frameshift site. Preliminary results agree with the expectation, with the mutant having a lower average frameshift efficiency than the wild type. Current work is focused on measuring these values again using newly transcribed RNA held to higher quality control standards to ensure the preliminary results are reproducible. Once finalized, these results will reveal the importance of the stem-loop's thermodynamic stability in the HTLV-1's gag-pro frameshift site function.

Uneven Enforcement: How Mexican Food Safety Regulation Shapes Small Exporters' Access to the U.S. Market

Sabina Prieto

This project examines how enforcement irregularities in Mexican food safety regulation affect small exporters' ability to access U.S. markets. On paper, agricultural trade is regulated by laws on food quality, certification, and logistics. In practice, it comes down to how those rules are enforced. In Mexico, big firms and producer associations tend to gain steady support and easier certification, while smaller producers face delays, rejections, or inconsistent oversight that make it much harder to compete. This study uses a comparative case study approach, focusing on sectors such as beef versus packaged meats, to analyze how similar industries produce different outcomes in market access. By tracing key events such as disease outbreaks, border rejections, or changes in certification, and combining this with trade data and interviews, this paper will show how unequal enforcement keeps smaller exporters at a disadvantage. My contribution to the international relations debate is showing how informal enforcement practices in Mexico's meat industry, beyond formal law, directly shape who gains access to U.S. markets. The findings contribute to a bigger debate: are food safety rules really about protecting consumers, or are they sometimes used as a tool of protectionism that worsens global inequalities? This study advances theoretical debates on whether trade rules promote fairness or worsen inequality, while also offering policy insight into how enforcement reforms in Mexico could expand U.S. market access for small exporters.

The United States, China, and Nigeria: A Media Study in Structural Imperialism

Jack Dhein

"This paper examines changes in Chinese and American competitive investments in Africa through the lens of structural imperialism. China's digital infrastructure investments through the Belt and Road Initiative (BRI) and China-Nigeria media cooperation have enabled Chinese structural imperialism in Nigeria, a trend that could negatively impact Nigerian media freedom amid the recent decline in U.S. global foreign aid, funding, and development. This paper is a policy analysis augmented by local popular media accounts that offer insights into how China and America are understood by Nigerian audiences, thereby contextualizing local Nigerian politics within American and Chinese transnational media and infrastructure investment patterns, as well as political influence initiatives. The analysis suggests that American development aid and media trade deals, while imperfect, were more conducive to democratic media freedoms in Nigeria. The U.S. should prioritize a return to Biden-era policies rather than "America First" policies."

Unlocking the Potential of Citrulline Malate

Fabiola Bejarano, Mona Hassan, Nicole Wedel, Cameron Whitt, Elisa Milkie, Marco Rocha

Citrulline malate (CM) is an ergogenic aid hypothesized to improve exercise performance. Prior research demonstrates improvements in upper and lower body submaximal resistance training exercise performance in females; however, limited research exists on the effects of CM supplementation on submaximal aerobic exercise performance in females. PURPOSE: Determine the effects of acute CM supplementation on submaximal time-trial (TT) performance in females. METHODS: Twenty-five female participants (age: 23±10.59 yrs.; height: 162.8±5.9 cm; mass: 62.6±9.3 kg) participated in a randomized, double-blind crossover trial ingesting either 8 gm CM + 8 gm dextrose or 8 gm dextrose (placebo). After one hour, participants completed a 30-minute TT at a moderate intensity. Each data collection trial was separated by a wash out period of at least one week. VO2 data was collected via expired gases at rest and throughout the trials with a metabolic cart. RESULTS: There was no significant difference in distance traveled during each TT ($P>0.05$). There was also no significant difference in VO2 at any time point between the conditions ($P>0.05$). CONCLUSION: CM supplementation does not appear to improve submaximal oxygen consumption in a 30-minute TT in females. Trends in the data suggest CM supplementation may have positive effect by increasing distance traveled during the 30-minute TT, however, further data collection is warranted to validate these conclusions. Future research should explore outcome differences between males and females, and pre- and post-menopausal females to further understand the role of estrogen and its interaction with CM supplementation and NO production.

Unpaid Internships in Creative Fields

Sophie Starck

This project supported an unpaid summer internship with Saphire Event Group, an award-winning wedding planning company in Massachusetts. As a Film and Television Production major with an interest in event storytelling, I explored whether the high-pressure world of wedding planning aligns with my long-term career

goals. Over 12 weeks, I worked hands-on, assisting with real weddings, documenting my experience through weekly written reflections that tracked my contributions, stress levels, and personal growth. My research aimed to answer one central question: how can students in the creative industries, such as film and television production, where it is common to exploit unpaid or underpaid interns to fill gaps in unskilled labor, ensure their desired learning outcomes? By working directly with the demands of the wedding industry, I gained clarity about this profession while providing a model for other students exploring unpaid creative fields.

Urban Restoration, Establishment, and Management of Micro-Grassland in Ascot Hills Park
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 tested, 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 which allows observations of biodiversity, 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.

Use of a Smartphone App Influences Diet Quality Among College Students
Alexis Arle

Diet quality can protect or increase risk for noncommunicable diseases (NCDs). Diets rich in carotenoids are linked to reduced risk of NCDs. Dietary carotenoids can be measured in the skin and can serve as a biomarker of fruit and vegetable intake. PURPOSE: The purpose of this study was to investigate whether use of the In2Eat app improved diet quality among college students. METHODS: We administered a baseline survey including the Diet Quality Questionnaire (DQQ). Participants were also tested for skin carotenoid levels using a spectrophotometer (Konica Minolta 600D) as an indicator of diet quality. Participants were asked to use the In2Eat app designed to improve diet quality and intuitive eating. After 4 weeks, participants completed a follow-up survey. The diet records were analyzed using the DQQ Indicator Calculator to determine factors protective against NCDs and factors that increase risk for NCDs. The frequency of app usage was evaluated for relationships with the NCD-Protect and NCD-Risk scores. RESULTS: Frequent app users (n = 23) logged 243.8 ± 91.2 meals over the 4-week period, while infrequent users (n = 22) logged 50.9 ± 42.5 meals. Among frequent users, NCD-Risk scores significantly decreased (2.7 ± 2.1 to 2.0 ± 1.3, p=0.048, while NCD-Protect scores did not change significantly

(4.0 ± 1.8 to 3.4 ± 2.0, p=0.074). Infrequent users had no significant change in NCD-Protect scores or NCD-Risk scores. Skin carotenoid levels increased significantly across all participants (15.4 ± 1.9 to 15.7 ± 2.0, p = 0.032), though this change was not significant when analyzed by app use frequency. Total meals logged was negatively correlated with NCD-Risk at visit 2 (r = −0.328, p = 0.03). CONCLUSION: Frequent app users significantly decreased their dietary risk for NCDs, suggesting a decrease in unhealthy foods. However, their diet diversity also decreased indicating a decline in food variety. Infrequent users showed no significant changes in diet quality. Overall, the In2Eat app was associated with reducing dietary risk for NCDs, but further improvements are needed to improve dietary diversity.

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 diFicult 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 *insert flowers here* from the micro-forest in Ascott Hills were swabbed with plastic and cotton swabs. Each sample was collected in an *insert buFer here* and transported to the lab. The DNA was then extracted, ran through PCR, and quantified for data analysis GNAT. After analysis It was found that there were pollinators 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 Near-Infrared Spectroscopy to Assess Skeletal Muscle Oxidative Capacity and Cardiorespiratory Fitness

Audrey Hunnicutt

Skeletal muscle function significantly contributes to health span, defined as the period spent free of disease and disability, by maintaining mobility, independence, and metabolic health. Central to skeletal muscle health are mitochondria, which produce adenosine triphosphate (ATP) for muscle contraction, repair, and maintenance. However, existing methods for evaluating mitochondrial function in vivo are often invasive and time-consuming. A noninvasive approach involves using near-infrared spectroscopy (NIRS) to indirectly assess oxidative capacity. NIRS operates by transmitting light at fixed near-infrared wavelengths through tissue and measuring changes in light absorption by oxygenated and deoxygenated hemoglobin to assess tissue oxygenation. Because mitochondria are predominantly responsible for oxygen consumption, measuring the rate of oxygen disappearance provides an estimate of mitochondrial oxidative capacity. We hypothesize that greater skeletal muscle oxidative capacity will be associated with higher levels of cardiorespiratory fitness. If supported by the data, this protocol will establish a safe and noninvasive method for evaluating skeletal muscle function as an

indicator of overall metabolic and cardiorespiratory health. This approach could be used to assess disease and disability and evaluate the efficacy of interventions to counter metabolic disease.

Variability in Developing Elevation Contour Diagrams

Ryan Adams, Jacob Lopez

Elevation contour diagrams allow for the visualization and documentation of terrain elevations in two-dimensional plans. The goal of this project is to compare and analyze the efficacy and precision of industry standard computer aided design programs for the generation of elevation contour diagrams. Elevation contour diagrams will be generated for the Sunken Gardens on the Loyola Marymount University campus using a variety of design programs. The team will utilize field data acquired with a Trimble SX12 Total Station to develop elevation contour diagrams in Civil 3D, Trimble Business Center, ArcGIS, and SketchUp. The project will incorporate two methods of collecting data, utilizing a previous survey of 159 ground level points as well as data collected from a comprehensive point cloud scan of Sunken Gardens. This project will compare the resulting diagrams based on their precision and documentation methods and capabilities. Additionally, the project will analyze the impact of elevation estimation and interpolation on contour diagram accuracy, specifically how different programs handle estimating the elevation of locations between surveyed data points. The project will also compare the use of coordinate based surveyed points with the use of point cloud scans. In summary, the aim of this project is to compare the ways different programs generate elevation contour diagrams and provide recommendations on the most effective documentation methods for engineering applications.

Venice Beach, a Utopian Dystopia

Raevo Panigoro

Venice Beach has an international reputation for creativity and subcultures. This creativity has been expressed through street performers, murals, skate culture, and artists who reside along the boardwalk and in its vicinity. Beneath its many innovations lies long-standing inequality shaped by redevelopment, gentrification, and policing. This paper argues that Venice Beach functions as a cultural borderland where multiple communities coexist unequally. Its creative identity was originally produced through informal, working-class, and marginalized cultural practices but has increasingly been commodified through redevelopment and tourism-oriented policy in ways that contribute to displacement and exclusion. This approach challenges narratives of Venice as a place of leisure by examining how local culture builds community while also producing displacement and exclusion. Linking the mundane to large-scale structural forces, this paper shows how changes in the urban environment at Venice Beach reveal how contemporary redevelopment has transformed access to space, cultural expression, and social power. This paper draws on fieldwork observations and informal interviews with pedestrians and performers, analyzing them through scholarly work on gentrification, land-use policy, and borderlands theory. In particular, it draws on Anzaldúa's borderlands theory alongside the research of Deener, Lens et al., Fredriksen, and Cappelli to examine commercialization, displacement, homelessness, and the ways local policy affects minorities' political visibility. The results indicate that Venice Beach's creative identity is sustained through

redevelopment processes that marginalize working-class and unhoused people, highlighting the urgency of reevaluating urban policies driven by tourism and profit.

View Park Oral Histories Project
Eve Harrison

The View Park Oral Histories is a project aimed at gaining an understanding of the historical experiences of the elderly and majority African American population that calls the Los Angeles neighborhood of View Park home. My project tackles this area's hidden history. View Park is nestled in the Baldwin Hills. The neighborhood was developed as a white suburb in the 1930s but is now known as a predominantly black neighborhood, even earning the nickname "The Black Beverly Hills". My project helps to fill a gap in the study of Black Los Angeles by placing significance on Black LA's affluence which is often understudied. My project is based on oral history testimonies. My approach is to learn about View Park by asking the inhabitants of the neighborhood about their time living there. View Park is on the list of the U.S.'s historic districts and is the largest district composed of majority African Americans. Yet the racial demographics of this neighborhood are changing. The younger generations moving in are largely White and Asian. In the course of this project I will interview a number of my neighbors making sure to focus my questions on how the neighborhood has changed, what their lives have been like living here, and what it meant for them to live in a predominantly upper middle class Black area. My research will expand the story of Black LA by focusing on this upper middle-class neighborhood as a part of LA history that deserves our attention.

Visualizing the Colonization Pathways of Non-rhizobial Plant Growth Promoting Bacillus Simplex in Root Nodules
Malee Bedolla

Bacillus simplex was isolated from Negev Desert soil, in the rhizosphere of Zygophyllum dumosum (bushy bean caper). This Bacillus simplex strain demonstrates plant growth-promoting properties, including increased plant biomass on multiple species and phytohormone production. The strain also improves nitrogen-fixing symbiosis between the soil bacterium, Sinorhizobium meliloti and its legume host, Melilotus alba (white sweet clover). In the Rhizobium-legume symbiosis, the plant builds root nodules to house the rhizobia. After rhizobial nodule colonization, photosynthate is provided to drive the energetically expensive nitrogen-fixation reaction, converting nitrogen gas to biologically usable forms, which the plant utilizes as biofertilizer. When Bacillus simplex is combined with Sinorhizobium meliloti to inoculate M. alba roots, the number and size of nodules increase relative to plants inoculated with S. meliloti alone. To determine whether Bacillus colonized the root nodule's interior, the nodule exteriors were sterilized, and intranodular bacteria were cultured on agar plates. Bacillus simplex was recovered from the nodules, however, their intranodular location and colonization pathway remain poorly understood. To visualize the bacterium and investigate the mechanism of colonization, the Bacillus strain is transformed with either pNF8 or ECE152, plasmid vectors which constitutively express green fluorescent protein (GFP). Root colonization is visualized using confocal laser scanning microscopy, providing insights into the attachment patterns and tissue preferences of the strain. Understanding these colonization pathways is

critical for the transition from controlled microsoil studies to broadscale agricultural applications, where Bacillus based biofertilizers offer a sustainable alternative to synthetic chemical inputs by enhancing nutrient uptake efficiency and stress resilience.

Wages of Blackness: The Hollow Promises of the Soulaan Movement
Ethan Carter

I am inspired by Du Bois' argument in Black Reconstruction in America of "wages of whiteness," I argue for the existence of the wages of Blackness: Black membership class attempting to mimic what Cheryl Harris defines as "whiteness as property and privilege" by producing a socially and politically privileged class of Blackness. I draw from Afropessimism to demonstrate the structural impossibility of Blackness that yields power and privilege when Blackness exists in direct opposition to whiteness. I conduct digital ethnography, focusing on the Soulaan blog, a Soulaan-themed TikTok digital archive, and commentary on Soulaan identity. I argue that wages of Blackness, as pursued within the Soulaani racial ideology, is an attempt at radicalism, ultimately relying on the tools of whiteness to distance themselves from subjection. Through this analytic, I examine the development of the Soulaan movement among Black Americans. I conduct digital ethnography through engagement with the creator of the Soulaan blog, alongside a TikTok digital archive comprising videos of commentary on the Soulaan identity. The goal of the Soulaani movement is not the subversion of whiteness, but the pursuit of honorary privilege, purportedly reserved for Soulaani identity through the wages of Blackness. I conclude that Soulaani ideology selectively grants certain members of the diaspora as a means of reproducing whiteness through exclusion and boundary policing. The theoretical implications of the analysis of organic identity formation for Black Americans are discussed.

Western Movies and the Mythology of America
Lincoln Burger

In order to aid the creation of an original western screenplay, I researched the western genre, aiming to uncover its historical roots and evolution. To watch westerns, I split the genre into five rough categories and aimed to watch at least five films per category: The classic western, the spaghetti western, the revisionist western, the acid or weird western, and the 21st century western. For film literature on the genre, I used the resources available through the LMU Library. Through these avenues, I found one major takeaway: Nearly all westerns focus on either imagining a moral past in the historical landscape of the American West, often the case in the classic era, or on reflecting on the imagined west created by those works, either through elevating their iconography into an even more mythological dreamscape, as is the case of the weird or acid western, or by grounding the genre in the real historical violence and grey morality characterizing the time period, as is the case of the revisionist western. Going forward, I'll use this to pose fundamental questions of how I construct my screenplay. For example, how much will the film play into the mythology of the western, and to what effect? Through this, I hope to craft a story which uses the engaging tropes of the western genre to question the morals crafted by the classic era westerns.

What it Takes to Stay Afloat: Financial Strain and the Student Experience

Andrea Ramirez

While higher education continuously advertises its diversity and student support services, socioeconomic disparities continue to impact day-to-day life at private universities. This qualitative study explores the impacts of socioeconomic background on the experiences of five students attending Loyola Marymount University, a private Jesuit university in Southern California. Data was collected using semi-structured interviews with five undergraduate seniors from a range of self-identified socioeconomic backgrounds: two low-income, one middle-class, and two upper-middle-class participants. The interviews covered topics related to academics, social life, and emotional well-being to identify how socioeconomic status impacted their college experience. This presentation focuses on data from students from low and middle-class backgrounds. Analyses of these data revealed three primary themes: Feeling Left Out, Forced to Make Hard Decisions, and The Toll it Takes. The findings highlight the psychological burdens on lower-income students who reported feeling the constant weight of college expenses, leading to anxiety, burnout, and loss of motivation. Ultimately, the results emphasize how financial strain can lead to very different "college experiences" among students of different socioeconomic backgrounds. This has implications for future programs and systemic interventions in higher education and emphasizes a holistic understanding of the needs of low-income students.

Whole Genome Analysis and Characterization of Pseudomonas sp. A09CAGT08 – a PGPR Isolated from California Poppy

Jeffrey Lee

Plant growth promoting rhizobacteria, commonly known as PGPR, possess an important role in enhancing plant growth through various mechanisms through host interactions. Plants possess an important role in dune stabilization, which is a crucial component for coastal protection and diversity. PGPR help facilitate plant growth, helping them thrive through various stresses. The Pseudomonas genus is a favored bioinoculant due to its notable complementary mechanisms with various plants. The aim of this study is to conduct a whole genomic analysis of the PGPR Pseudomonas sp. A09CAGT08, coupled with further characterization of its interaction with plants. The bacterium was originally isolated from roots of Eschscholzia californica (California Poppy) found in the El Segundo Sand Dunes. DNA from the isolate was processed by Illumina next-generation sequencing to provide FASTQ files for annotation and analysis. Genomic analysis was performed through programs in Kbase to annotate distinct contigs to evaluate phylogenetic relationships. Analysis of the 16s rRNA gene of A09CAGT08 indicated high confidence in belonging to the Pseudomonas genus, with a 99.71 percent identity match with Pseudomonas frederiksbergensis. Phylogenetic analysis of the 16s rRNA gene and housekeeping genes showed close clustering with Pseudomonas frederiksbergensis, corrugata, and fungipugnans. Average nucleotide identity values with respect to the clustered species, infer strong confidence that the isolate may be a novel species. As a future direction, the project aims to analyze specific genes that are associated with plant-host interactions to provide a more complete picture of the genome and its mechanisms.

Woman as the World Ends: Abjection, Care, and the Feminization of Survival

Jessica Hanassab

At moments when humanity faces extinction or transformation, contemporary cinema repeatedly turns to female or feminized figures. This paper asks why survival and apocalypse are so often imagined through femininity in the first place. Drawing on feminist film theory, theories of abjection, and biopolitical approaches to reproduction and care, I analyze Cam (2018, Daniel Goldhaber), I Am Mother (2019, Grant Sputore), and Under the Skin (2013, Jonathan Glazer) as films shaped by a cultural desire to imagine human survival without bodily risk or unpredictability. I argue that femininity becomes central to these narratives because Western visual culture has long tied women's bodies to reproduction, care, and emotional labor, making them the site where the future of humanity is negotiated. In Cam, femininity becomes machinic through a platform-generated double that rewards consistency and performance over lived embodiment. I Am Mother pushes this logic further by preserving reproduction while removing the female body altogether, reframing motherhood as a programmable system rather than a lived condition. Under the Skin works against both models, presenting femininity as embodied and unknowable as humanity collapses around it. Taken together, these films suggest that contemporary cinema imagines survival not as adaptation, but as containment. The apocalypse is averted only when femininity becomes predictable, manageable, or detached from the body. By tracing how femininity shifts from embodied presence to machinic function, this paper argues that the future of humanity is repeatedly imagined through the regulation of the bodies once thought to sustain it.

Women's and Maternal Health Engaged Learning with South Central LAMP

Yvette Castellanos, Juliana Roman

This engaged learning experience is to help educate minority women who come from a lower socioeconomic status on the importance of women's and maternal health. Many of the women who attend South Central LAMP (Los Angeles Ministry Project) are there to receive extra support in taking parenting classes, participating in literary programs, and English as a Second Language courses. With these resources to help empower the women to feel confident, our class created five presentations about women's and maternal health to deliver to the mothers at South Central LAMP. Students put together an informational presentation, engaging activity, and pre- and post-surveys to optimize learning. We translated the presentations for the predominantly Spanish-speaking group and supported the students in their conversational Spanish skills in order to engage with the women. This project had a profound impact on our students. It provided an opportunity for them to serve their community beyond the bluff and apply course content in a real-world setting. We were moved by how strong-willed and dedicated the women were to learn and betterment for themselves and their children, despite facing much adversity. This community of women has faced many challenges to education, independence, and self-advocacy, having to make sacrifices to care for their families. Latinos in the U.S. have the lowest health literacy rates, contributing to poorer health outcomes. We hope that these presentations assist the women in informing them how to take care of themselves and advocate for their health in clinical and social settings.

Writing Art: The Legacy of Jackson Pollock as it Intertwines with the Literary Interpretation of an Artistic Movement

Carmela Michaeli

The art historical canon can be understood as a standardized construction of art history. However, standard is not rigid. This canon is capacious, expanding and constricting as preeminent perspective shifts. Within this living network, is the ever-expanding construction of a superstar of art history, Jackson Pollock. Art Historian Amelia Jones describes Pollock as, "a subject that is potentially dispersed, dislocated, and open to spectatorial engagement" (Jones 55) This "spectatorial engagement" refers to Pollock's formation by the literary interpreters of art during and following the abstract expressionists. Our understanding of the formal characteristics of Pollock's work is fundamentally tied to interpretations by thinkers such as Clement Greenberg, Harold Rosenberg, Allan Kaprow and others. These interpretations of Pollock combined create a vast web of discourse surrounding the artist, characterizing his legacy. This presentation will present some of the dominant constructive authorities regarding the artist Pollock. Examining these writers' relationship with Pollock the man and Pollock's work in order to demonstrate the multiplicity of the artist as he is both a critical construction and an artistic figure. Next, reconstructing the impact of both Pollocks' work and its scholarship on the larger development of American art. Ultimately, coming to conclusions regarding the historical and contemporary conditions wherein discourse is ever present in our construction of Pollock.

Student Index

Lincoln Burger
Film and Television Production

Olin Burke
Film and Television Studies

C

Christian Cabero
Psychology

Lauren Campbell
Computer Science

Lucas Canestraro Ahnen
Physics

Sofia Carranza
Biology

Ethan Carter
Chicane and Latine Studies & Political Science

Adrian Casiano
Psychology

Zoe Castanon
Biochemistry

Yvette Castellanos
Health and Human Sciences

Isabella Castro
Psychology & Sociology

Vincent Chacon
Psychology

Mira Chaffin
Psychology

Eva Chahbazian
Environmental Science

Jason Chamorro
Computer Science

Margaret Chaney
Classics and Archaeology

Sevilla Chapman
Communications

Dayyan Chaudhri
Computer Science

Alexander Chavez
Biochemistry

Sophia Chavez
Psychology & Spanish

Dana Christensen-Levy
Economics

Nikki Chun
Biology & Math

Antoine Corbani
Political Science & Film, TV, and Media Studies

Lauren Crumb
Biochemistry

Diego Cuadros
Computer Science

Isabella Cuellar
Health and Human Sciences

Stephen Cummings
Environmental Science

Lucy Curran
Political Science

Casey Curtis
Environmental Science

Tisha Eve Custodio
Psychology

D

Jayesh Damaraju
Film and Television Production

Angeline Dangca
Biochemistry

Noah Dangcil
Environmental Science

Nicole Darley
Environmental Science

Joshua Dasilva
Psychology

Jack Davenport
Environmental Science

Olivia de la Fuente
Psychology

Alice de Sa Costa Pereira
Biochemistry

Sofia Deek
Mechanical Engineering

Zachary DeGuzman
Psychology

Isabella Del Castillo
Biology

Amelia Desmarais
Biology

Jack Dhein
Communication Studies

Amelie Dinh
Computer Science

Julia Domanskis
Biology

Brandon Dona-Velazquez
Psychology

Bryce Dryden
Mechanical Engineering

Matthew DuBois
Physics

Andrei Dudikoff
Mechanical Engineering

Kathryn Duff
Psychology & Sociology

Landon Dysart
Political Science & Economics

E

Amir Edwards
Psychology

Sofia Enriquez
Biology

Sara Epps
Health and Human Sciences

F

Lauren Fabre
Biology

Amelie Favre
Political Science

Isabella Fernando
Classics and Archaeology

Seth Fernando
Business

Leilani Field-Ridley
Mathematics

Stephanie Flores
Biology

Sara Francis
Finance

G

Olivia Gallagher
Economics

Makenzie Ganje
Political Science

Jia S. Garcia
Computer Science

Isabella Garcia Ascencio
Chemistry

Dee Gbagbo
Psychology

Yayra Gbagbo
Biology

Nicholas Genovese
Biology

Alexander Gertler
Pre-Medical Post-Baccalaureate Program

Madrid Ghanavat
Biochemistry

Jeffrey Go
Psychology

Marisa Gomez
Biology

Sophia Gonzalez
Biochemistry

William Gordon
Psychology

Daniel Gostanian
Biology

Cori Graham
Communication Studies

Eva Guillory
Art and Design

Isis Gullette
Screenwriting &
African-American Studies

Mia Gutierrez
Political Science

Sarah Gutknecht
Psychology, Sociology, &
Women's and Gender Studies

H

Giselle Haddad
Health and Human Sciences

Leyat Hailu
Health and Human Sciences

Clarke Hamilton
Studio Arts

Jessica Hanassab
Film and Media Studies

Eve Harrison
History

Mona Hassan
Health and Human Sciences

Laura Haushalter
History & Environmental Studies

Chase Haydel
Classics and Archaeology

Spencer Heaton
Biochemistry

Natalie Hedding
Biology

Carolina Hernandez
Psychology &
Chicana/o and Latina/o Studies

Victoria Hernandez
Mechanical Engineering

Alexia Herrmann
Film Studies

Chloe Hooker
Health and Human Sciences

Logan Hoover
Film and Television Studies

Raffi Hovanessian
Biology

Garrett Howard-Jimenez
Marketing

Catherine Hsiao
PreMed

Mikaela Huarcaya
Film, TV, and Media Studies

Audrey Hunnicutt
Physics

Ashley Hurjak
Chemistry & Applied Physics

Zayad Hyder
Psychology

I

Ryan Iglesias
Biochemistry

Lainee Irribarren
Biology

J

Dhwani Jain
Information Systems and Business Analytics

Viraj Jain
Biochemistry

K

Tanvi Kalakuntla
Psychology

Tze Fung Kao
International Relations

Anika Karan
Psychology

Natalie Karapedian
Chemistry

John Kassabian
Urban Studies & Environmental Studies

Hayley Katz
Biology

Mackenzie Kawashiri
Mechanical Engineering

Morgan Keating
Psychology

Lisette Keating-Gonzalez
Political Science & Chicano/a and Latino/a Studies

Samantha Kelley
Psychology

Ryan Khosravi
Biochemistry

Lauren Kim
Communication Studies

Yasmin Kim
Psychological Sciences & Sociology

Elle Komara
Biology

Hannah Kotek
Biology

William Kulewicz
Archaeology

Addy Kusek
Biology

L

Tiia Lachance
Psychology

Sebastian Lange
Computer Science/Statistics and Data Science

Nicholas Laus
Computer Science

Lila Le
Biology

Ashley Lee
Biology

Colson Lee
Psychology

Jeffrey Lee
Biology

Kolton (Koko) Leong
Finance

Logan Lewis
Biology

Jacob Lopez
Civil Engineering

Paola Lopez de Cardenas
Biology

Serena Louie
International Relations

Diego Luis
International Relations

M

Paolo Mah y Busch
Chicana/o and Latina/o Studies

Karim Malik
Management and Leadership

Asha Manthena
Psychology & Dance

Maricia Marquez
International Relations

Matias Martinez
Information Systems and Business Analytics

Christina Mau
Biology

Kathryn McGinnis
Environmental Science

Matisse McKenna
Biology

Zoe McMullen
Psychology

Eden Mehrotra
Sociology

Kennedy Melton
Biochemistry

Carmela Michaeli
Art History

Elisa Milkie
Health and Human Sciences

Alex J. Miller
Computer Science

Tayler Minter
Environmental Science

Arwen Miranda
Psychology

Jenson Molebash
Mathematics

Ryan Moon
Health and Human Sciences

Liam Moore
Biochemistry

Sofia Moskaleva
Economics

Kate Murphy
Physics

Beverly Mutuku
Statistics and Data Science

N

Alexis Nagler
Psychology & Political Science

Sadie Nanson
English &
Women's and Gender Studies

Joseph Nash
Computer Science

Larissa Negom
Biochemistry

Adam Neulander
Computer Science & Mathematics

Ngoc Kim Ngan Tran
Computer Science

Logan Nguyen
Biology

Mandoline Nguyen
Biochemistry

Areika Novella
Psychological Science

O

Uche Obi-iwuagwu
Computer Science/Statistics
and Data Science

Joaquín Olavarria
Mechanical Engineering

Rebecca Olvera
Biology

Samantha Ortiz-Mclendon
Health and Human Sciences

Nigel Outley
Biochemistry

P

Max Page
Film Production & History

Carter Paige
Psychology

Amelia Palacios
Computer Engineering

Raevo Panigoro
International Relations

Kanna Parker
Economics

Elizabeth Parr
Art History

Lily Pellillo
Political Science & Marketing

Isabella Pezo
Biology

Nathaniel Pierre-Louis
Mechanical Engineering

Kaitlin Pintens
Psychology

Mateo-Luis Planas
Political Science

Emilio Plascencia-McCort
Biology

Chris Porter
Mathematics

Sabina Prieto
International Relations

Alexandra Probst
Biology

Alexander Provenzano
Biology

Q

Sam Qualls
Sociology &
Women's and Gender Studies

R

Andrea Ramirez
Psychology

Jack Richardson
Philosophy

Thomas Rife
Computer Science

Sophia Rivera
Health and Human Sciences

Raul Rivera III
Psychology

Gia Rizvi
Biology

Marco Rocha
Health and Human Sciences

Neftali Rocha-Martin
Biology

Alyssa Rodriguez
Biology

Juliana Roman
Health and Human Sciences

Brooke Rosten
Biology

Erin Roy
Political Science

Salvador Ruiz
Mechanical Engineering

S

Shreeya Sahasrabudhe
Political Science

Fiorella Salazar
Political Science

Kristal Salazar
Political Science

Karina Sanchez
Marketing

Donnie Sarabia
Mechanical Engineering

Olivia Schafer
Environmental Science

Connor Schmit
Biology

Matthew Schoenbachler
Mechanical Engineering

Cameron Scolari
Computer Science/Statistics
and Data Science

Rebeka Shamis
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