HONORS COLLOQUIUM

Fall 2025

PROGRAM OF ABSTRACTS
for Honors Thesis Projects submitted by undergraduate students completing the USD Honors Program in December 2025.

Thesis projects will be presented to the public during short oral presentations on December 6, 2025 from 9 a.m. to 12:30 p.m.
in the Learning Commons on the University of San Diego campus.

SCHEDULE AT A GLANCE

9:00 a.m. *Refreshments & Welcome*
9:15 a.m. Student Presentations (Block A)
9:55 a.m. *Break*
10:10 a.m. Student Presentations (Block B)
11:10 a.m. *Break*
11:25 a.m. Student Presentations (Block C)

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Schedule of Thesis Presentations

	Learning Commons, Room, 103	Learning Commons, Room, 104
Block A 9:00 AM	**Olivia Hines** (PHIL/Tammelleo) **Carson Sebree** (POLS/Shelby)	**Eva Ng** (CHEM/Bolender) **Jennifer Torres Leon** (SOCI/Martinez)
Break - 10:00 AM		
Block B 10:10 AM	**Kanan Levy** (PSYC/Blaser) **Tatum Mosley** (IREL/Miura) **Eleri Irons** (HIST/Statler)	**MaryRose Johnson** (POLS/Williams) **Evan Walls** (GENG/Dalrymple) **Audrey Kline** (PSYC/Berkley)
Break - 11:10 AM		
Block C 11:25 AM	**Patrick McDermott** (ELEC/Kim) **Maddie Breaux** (PSYC/Forester) **Ethan Schnur** (IREL/Miura)	**Mia Filand** (ACCT/Lyons) **Vivian Papp** (GENG/Lord) **Kate Meagher** (PSYC/Wanic)
End - 12:25 PM		

ABSTRACTS

(listed alphabetically by academic disciplines)

ACCOUNTING

MIA FILAND

Thesis Advisor: Dr. Sarah Lyons, Accounting

Enron and the Birth of Modern Corporate Governance

This paper examines the Enron scandal as a pivotal moment in the evolution of modern corporate governance. Enron remains one of the most consequential corporate failures in American history, exposing profound weaknesses in governance structures, auditing independence, and financial oversight. By analyzing the company's fraudulent practices, the immediate fallout including the collapse of Arthur Andersen and widespread investor panic, and the regulatory reforms that followed, particularly the Sarbanes-Oxley Act of 2002, this paper demonstrates how Enron's collapse redefined the accounting profession, reshaped the auditing industry, and transformed cultural expectations of corporate transparency. At the same time, it evaluates the limits of reform, asking whether these measures effectively reduced corporate fraud or instead placed heavier compliance burdens on businesses. Ultimately, Enron's legacy remains central to understanding the modern framework of accountability and oversight in American business.

CHEMISTRY

EVA NG

Thesis Advisor: Dr. James Bolender, Chemistry and Biochemistry

Treated Coffee Husks as Effective Biosorbent for Heavy Metals in Groundwater

According to the World Health Organization (WHO), 2.2 billion people do not have access to safely managed drinking water. Because of this, they resort to gathering and consuming water from surface water or groundwater sources. Groundwater is a main source of drinking water for half of the world population, but it often has high concentrations of heavy metals due to the natural mineralogy or chemical contamination from mining and industrial waste. This study examines the utilization of coffee husks, a common agricultural waste product in Uganda, as a biosorbent for chemically contaminated groundwater, specifically copper (II). Coffee husks were washed, dried, and treated with HCl, HNO3, NaOH, or DI water. Artificial groundwater samples with various concentrations of Cu (II) (0.50 ppm, 0.35 ppm, 0.20 ppm, 0.15 ppm, and 0.10 ppm) were exposed to treated coffee husk biomass, and water samples were obtained over the course of 24 hours. Metal concentrations in the samples were measured using ICP-OES and analyzed using psuedo-first order kinetic methods. Coffee husk biomass was observed to be effective in removing Cu (II) ions from artificial groundwater. These results illustrate how treated biomass as a biosorbent in groundwater can provide a low-cost, accessible, and environmentally-friendly remediation method.

ELECTRICAL ENGINEERING

PATRICK MCDERMOTT

Thesis Advisor: Dr. Ernest Kim, Electrical Engineering

Exploring "Stable" Metastability within Digital Logic Systems

In electrical engineering, a stable system that behaves consistently is almost always the goal of any project. In the realm of digital logic systems, this "stability" manifests itself in the form of an output that strictly generates a "yes" or "no," 1 or 0. Sometimes, a digital logic system can generate an output that is between 1 and 0, a state known as metastability. This metastable state is almost always considered a failure of the system, indicating that there are problems within the sequencing of the circuit elements. This research explores digital metastability not as a failure, but as a gateway to understanding different multivariable, non-linear phenomena that occur within digital electronics and technology in general. Specifically, this research looks to uncover a connection between digital metastability and mathematical chaos theory. It also looks to investigate future connections between the behaviors of digital metastability and the decision-making process of Artificial Intelligence.

HISTORY

ELERI IRONS

Thesis Advisor: Dr. Kathryn Statler, History

Recognition or Rejection: A Historical and Neurological Approach to Korean and Vietnam Veterans on Their Homecoming Experiences

This thesis employs an interdisciplinary approach of behavioral neuroscience and history to examine the homecoming experiences of United States veterans from the Korean and Vietnam Wars, situating their stories within the broader political context of the Cold War. While World War II veterans were heroicized and celebrated for their service, those returning from Korea and Vietnam encountered silence or hostility. Supplemented with oral histories, this paper highlights how Korean veterans were overlooked in what was considered a "forgotten" war. Furthermore, those coming home from Vietnam faced a divided nation that created an environment of rejection through anti-war sentiment. This thesis connects the historical narratives of Cold War veteran reintegration with the neurological outcomes of trauma, specifically the development of Post-Traumatic Stress Disorder (PTSD). Emphasizing how public memory, political climate, and social reception intersect with the brain creates a more holistic understanding of the challenges of veterans returning to the United States.

INTEGRATED ENGINEERING

VIVIEN PAPP

Thesis Advisor: Dr. Susan Lord, Integrated Engineering

Integrating Indigenous Knowledge through Sociotechnical Education: A Study of Indigenous Use of Materials in Technical Courses

Indigenous traditional knowledge is typically not included or material perspectives within technical university-level courses. To address this disciplinary gap, I (along with the course instructor) designed and implemented a sociotechnical module that explores Indigenous use of materials and perspectives within a core third-year materials science course. The module focuses on Indigenous materials of cultural value (e.g. for tools, shelter, and jewelry) from various regional US tribes and nations. We then used a survey specifically developed to analyze how these perspectives shift students' perceptions of what is valuable to engineering, especially regarding sustainability and technical applications, and what instructional features support or hinder student learning and engagement. Findings provide a critical framework for a culturally responsive instructional approach in technical fields, ultimately improving student understanding of diverse engineering applications and sustainability challenges.

EVAN WALLS

Thesis Advisor: Dr. Odesma Dalrymple, Industrial and Systems Engineering

Methodological approaches for enhancing the energy efficiency of waste-to-energy biogas systems

Diversifying energy production is a key issue as the world looks to transition to more sustainable energy sources. Anaerobic digestion (AD) of organic waste is one example of waste-to-energy (WTE) methods for energy production that is of particular interest because of benefits to both waste management and energy production, supporting the development of circular economies. We used geographic information systems and experimental methods to identify ways to both minimize the energy inputs and maximize the energy production of WTE biogas systems. We focused on transportation as a controllable variable to reduce energy inputs and investigated cider wastewater as a potential feedstock for AD. We found that mixtures of cider wastewater, seaweed, and fish waste can effectively support biogas production, expanding the range of viable feedstocks for AD and potentially increasing biogas production. For these feedstock mixtures, coastal San Diego offers minimized transportation-related energy inputs, and the methodologies developed provide a viable tool for optimizing WTE AD systems.

INTERNATIONAL RELATIONS

TATUM MOSLEY

Thesis Advisor: Dr. Kacie Miura, Political Science and International Relations

Strategic Competition and Scientific Norms: U.S. - China Rivalry in AI and Semiconductors

The growing competition between the United States and China is transforming how countries cooperate in science and technology, especially in areas like artificial intelligence and semiconductors. Longstanding principles such as open academic exchange, international collaboration, and ethical responsibility are now being challenged by national security concerns and government led technology policies. In the United States, measures like the CHIPS and Science Act and AI export controls reflect this shift, while China's Made in China 2025 plan and national AI strategy show a similar push toward technological self reliance. This study uses qualitative methods, including document analysis and historical comparisons to Cold War era science diplomacy, to explore whether today's trends mark a major break from past models of scientific cooperation or represent continuity in a new form. By connecting technology policy to broader geopolitical and theoretical perspectives in international relations, this research sheds light on how global governance and scientific collaboration are evolving in an age of great power rivalry.

ETHAN SCHNUR

Thesis Advisor: Dr. Kacie Miura, Political Science and International Relations

A Formative Explanation of Philippine Foreign Policy

Since first gaining independence from the United States in 1946, the Philippines has kept close ties with its former colonizer. Throughout history, various treaties have been ratified, and promises have been made that have caused the Philippines to align itself with the US more closely, yet also distance itself from the US when it has been viable. Previous research on the topic has shown that US-Philippines relations have benefited significantly from mutual defense treaties and a strong US naval presence in the South China Sea. Throughout this paper, a comprehensive approach will be taken measuring how closely aligned the Philippines and US have been throughout the former's history as an independent country. It will aim to analyze the foreign policy actions taken by the governments of each, not the sentiment of the populus' in relation to the other country or popularity of those policy actions. In conclusion, the major pillars creating strong US-Philippine foreign relations have been mutual defense treaties, counter-terror efforts in the early 2000s and close economic trade ties.

PHILISOPHY

OLIVIA HINES

Thesis Advisor: Dr. Steve Tammelleo, Philosophy

An Ethical Approach to Artificial Reefs: Biodiverse Paradise or Marine Debris?

Since 1996, the seabed of the inner continental shelf off the coast of Delaware has been home to a system of artificial reefs. Created by the Delaware Department of Natural Resources and Environmental Control (DNREC) in an effort to increase local marine biodiversity and generate interest in recreational fishing and diving, deployed objects such as New York City subway cars and military vessels make up fourteen unique artificial reef sites. Thanks to consistent geoacoustic monitoring of these sites by researchers at the University of Delaware, it is apparent that these artificial reefs will not last forever. Largely due to constant hydrologic forcings in the form of waves and currents as well as periodic storm events such as nor'easters and hurricanes, these artificial reef objects interrupt ordinary sediment distribution dynamics, quickly lose their structural integrity, and eventually become what many would classify as marine debris. Despite temporary ecosystem benefits that the DNREC artificial reefs provide, the question must be asked: Is it ethical for humans to develop artificial reefs in this region? To contribute to the discourse surrounding this ethical dilemma, this work applies theories within environmental ethics to investigate the natural versus the artificial/artifactual, nature versus wilderness, and consequentialist thought over time in the context of Delaware's artificial reef system.

POLITICAL SCIENCE

MARYROSE JOHNSON

Thesis Advisor: Dr. Mike Williams, Political Science

Eroding Trust: Populist Leadership, Social Capital, and Democratic Decay in the United States

This thesis examines how populist leadership erodes the social foundations that sustain democracy. While most studies of democratic backsliding emphasize institutional decline, this project foregrounds the social dimension, how leaders' rhetoric and behavior reshape patterns of trust, association, and legitimacy. Drawing on theories of social capital, it argues that populist strategies strengthen in-group loyalty while weakening cross-group trust and confidence in democratic institutions. These shifts in social capital create conditions conducive to democratic decay, as citizens become more polarized, less trusting, and more tolerant of anti-democratic behavior. The research combines theoretical synthesis with an empirical case study of the United States in the last ten years (2015–2025). Using survey data from the American National Election Studies, Pew Research Center, the Social Capital Atlas, and the World Values Survey, it tracks changes in institutional trust and civic polarization over time. A qualitative content analysis of presidential speeches and rally transcripts identifies rhetorical patterns that delegitimize institutions and amplify social divisions. Preliminary findings suggest that populist rhetoric accelerates the decline of cross-group trust, especially among partisan identifiers, reinforcing cycles of polarization and institutional distrust. By integrating theories of populism, social capital, and democratic backsliding, this study traces the causal pathway linking populist rhetoric to democratic erosion. It contributes to a growing recognition that safeguarding democracy requires not only resilient institutions, but also strong social trust, shared norms, and a civic culture that resists polarization.

CARSON SEBREE

Thesis Advisor: Dr. Karen Shelby, Political Science

Pronatalism in the United States: How Political Ideals Surrounding Family and Reproductive Health Care Contribute to Neglect in the Foster Care System

Within the past decade, reproductive politics in the United States have experienced an ideological shift from pro-life toward pronatalism. This has been intensified through the rollback of reproductive rights, the rise of Christian nationalism, and improper funding for the foster care system. This project asks, "how does the assigned responsibility of democratic care, along with political ideals surrounding family and reproduction, contribute to systemic neglect within the United States foster care system?"

Previous scholarship has examined both the effects of abortion restriction and family policy through legal and demographic analyses, which demonstrate that restrictive reproductive laws increase birth rates and strain foster care systems. My research bridges the areas of respected studies by examining how pronatalist ideology is rooted in political and religious motivations. Ethical and democratic failures of care, along with inadequate funding of social systems in the United States, lead to a lower quality of life for those put in foster care systems. I aim to combine political theory with empirical data to demonstrate how compelled birth without adequate governmental support undermines the possibility of a quality life.

Drawing from studies by JAMA Pediatrics and the National Library of Medicine, this project uses quantitative data showcasing the background of those entering the foster care system. It then situates the findings within a theoretical framework, informed by Joan Toronto's Caring Democracy and Danielle Allen's Justice by Means of Responsibility. Lastly, I utilize a case study of The Trials of Gabriel Fernandez to illustrate the consequences of institutional neglect within various social agencies.

This study finds that this ideological shift prioritizes the production of life over the quality of life, while creating systemic neglect which contradicts democratic and moral principles of care. A democratic system grounded in care must reassign responsibility across institutions to support the flourishing of children.

PSYCHOLOGICAL SCIENCES

MADELINE BREAUX

Thesis Advisor: Dr. Daniel Forster, Psychology

How the Broaden and Build Theory Plays a Role in Relationship Transitions

Using the Broaden-and-Build Theory of Positive Emotions, this study explored how positive emotions help people build resilience over time by supporting flexible coping during major relationship changes such as marriage, separation, divorce, and widowhood. Although each of these variables has been shown to independently affect individuals in these contexts, this series of direct and indirect relationships has not yet been explored. Using a longitudinal design, I recruited 160 adults who recently experienced a relationship transition within the last 3 months (around 40 in each transition group; Time 1), then followed up with these same participants three months later (Time 2). Two path models were tested to examine how positive emotions predicted resilience across time, both directly and indirectly, through approach and avoidant coping strategies. Results will be interpreted within the framework of the Broaden-and-Build Theory and in consideration of the unique experiences of each relationship group. This knowledge may aid clinicians working with individuals navigating these transitions by encouraging interventions that emphasize positive emotions and adaptive coping to strengthen resilience over time.

AUDREY KLINE

Thesis Advisor: Dr. Steven Berkley, Psychology

A Scoping Review of Pre- and Post-Event Factors in Eyewitness Memory and Interventions to Reduce Errors

Eyewitness testimony carries enormous weight in the courtroom, yet research shows that human memory is far from reliable. Memory is reconstructive; it fills gaps, reshapes events, and sometimes invents details without the witness realizing. This thesis presents a scoping review of empirical research on factors that distort eyewitness memory before and after an event, and interventions designed to reduce errors. Pre-event influences, such as stress, expectations, and priming, can warp how an event is encoded within witness memory, with high stress particularly impairing recall and identification. Post-event factors, including leading questions, co-witness discussion, and exposure to media or social media misinformation, can further alter what witnesses remember, often without affecting confidence. This review examines these distortions and strategies to improve accuracy. Evidence supports the Cognitive Interview as a reliable method for eliciting more correct recall, while sequential lineups reduce false identifications. Source-monitoring training and warnings before exposure to misinformation show promise, especially for children or vulnerable populations. Together, these interventions demonstrate that

while memory cannot be perfect, it can be guided and structured to reduce error. By synthesizing decades of research, this thesis identifies the high-risk points where memory falters, the factors that increase error, and the empirically supported methods that improve accuracy. The findings aim to inform psychologists, law-enforcement professionals, and policymakers, offering a blueprint for practices that honor human fallibility while strengthening fairness and reliability in the courtroom.

KANAN LEVY

Thesis Advisor: Dr. Rachel Blaser, Neuroscience, Cognition and Behavior

Eyetracking Measures of Performance on the Traveling Salesperson Problem

Human solutions to the Traveling Salesperson Problem (TSP) have been proposed to employ heuristics integrating global and local spatial information (Pizlo et al., 2006). Because different neuroanatomical regions may be involved in local vs. global processing, as well as attentional shift between levels, performance on the TSP may provide useful insight into changes that occur in the brain as a result of age or of neurodegenerative disorders (Slavin, 2002). In a previous study, we compared the cognitive processes used to solve spatial problems on a large scale (moving through space) and on a small scale (on a sheet of paper). We discovered there was no difference in the percent above optimal (PAO) between the drawn route and the traveled route. The current study uses eyetracking to examine target fixations during the TSP. The question was whether participants compensate for the presence of distractor cues by constructing a mental outline of the configuration before selecting a route.

KATE MEAGHER

Thesis Advisor: Dr. Rebekah Wanic, Psychology

Evaluating Treatment Interventions for Juvenile Drug Offenders

Understanding the factors that impact juvenile drug-related delinquency is challenging because many factors play a role, including not only juveniles themselves but peers, adults and institutions with whom they interact and intersect. Much work has focused on developing and evaluating intervention programs designed to rehabilitate and prevent common long-term consequences, including chronic substance use and high rates of recidivism. While much work exists, a coherent synthesis of the current literature is lacking. This thesis will examine the three primary interventions relied on in the United States at present: juvenile drug courts, the non-profit organization Reclaiming Futures, and the Center for Substance Abuse Treatments. In integrating the published literature, this review will focus on the strengths and weaknesses of each approach, aiming to identify the insufficiencies in process or evaluation of outcomes associated with these

rehabilitative frameworks. Building off these findings, a proposal for modifying intervention and analysis will be offered. Specifically, there is a need for extensive and up-to-date training for the individuals that work directly with juvenile offenders within these institutions and programs. The importance of effective delivery of intervention across different settings will be highlighted and suggestions for improvement will be outlined with emphasis on the importance of well-designed systems to provide targeted and continuous improvement of offenders in the juvenile justice system.

SOCIOLOGY

JENNIFER TORRES LEON

Thesis Advisor: Dr. Cid Martinez, Sociology

Surveillance Technology and the Tracking of Immigrants

San Diego city serves as ground zero for surveillance technology encroaching on the constitutional and human rights of all persons. Given its status as a border city to Mexico, current political events regarding the criminalization and targeting of immigrants makes the parameters of new technologies being used all the more preeminent. While there is significant literature explaining the criminalization of immigrants and its subsequent effects, there is still a critical piece missing. Surveillance technology is now the forefront for public safety as all federal and local law enforcement agencies note to be. However, use policies and application of the software is still ambiguous in nature due to a lack of descriptive terms and audits provided by law enforcement agencies. This project particularly notes an emphasis on immigrants as a class, both documented and undocumented, who are surveilled unknowingly through legal and illegal channels all sanctioned by the federal government's political agenda. Imminent discrepancies in the transmission of shared data by the San Diego Police Department to federal agencies as of late June suggests larger structural breaches of privacy rights. Smart Streetlights and Vehicle Licence Readers are noted to be the two prominent technological pieces dominating incognito facial recognition software and geolocation tracking. New usage of AI within these technologies, particularly with Vehicle License Readers, suggests that tracking is not only constituted for the purposes of public safety. Density trends of these technologies have been found in urban spaces inhabited by Black and Brown communities. Through a mixed methods approach via interviews, observations, and GIS tracking data of current cameras, a sociological lens will be applied to the magnitude of modern technology redefining privacy rights and posing a new increased threat for immigrants.