



RONALD E. MCNAIR SCHOLARS UNDERGRADUATE RESEARCH SYMPOSIUM 2026

**7TH MAY
2026**

Presented by Cal Poly Pomona
McNair Scholars Program



Welcome

Greetings, and welcome to the 27th annual Ronald E. McNair Scholars Program Undergraduate Research Symposium! The McNair scholars have been working diligently on their projects all year, and today's symposium is the culmination of their hard work. As you listen to their presentations, take note of the level of personal investment our scholars display in their research topics- each student cares deeply about their chosen subject, and that care is evident. This is a cohort of researchers who truly understand the value and impact their work can have on society, and the CPP McNair Scholars Program is proud to have played a small part in nurturing these future leaders.

Like all CPP students, McNair scholars have a myriad of responsibilities and commitments in addition to being full-time students. McNair scholars are parents, caretakers, business owners, club leaders, and active participants in their communities. This year, especially, our scholars also took on the role of activists, as they used their voices to advocate for the continued funding of the McNair Scholars Program by the US Department of Education. During a time when the future of this program, and many essential programs like ours, is uncertain, our scholars have displayed a level of hope and resilience that proves the future of research is in good hands.

While juggling their schoolwork, employment, research, and activism, our graduating scholars were also applying to various graduate programs, fellowships, and employment opportunities. We send our warmest wishes to all our graduating seniors as they embark on their next adventures, along with the reminder that "Once a McNair scholar, always a McNair scholar!"

Mountain Vista 1

Time	Scholar	Major	Research Title
3:00 pm	Devon Pizano	Psychology	<u>Autism, Depression, and Anxiety in College Students</u>
		5-minute break	
3:20 pm	Mareen Riad	Psychology	<u>The Impact of Immigration Age on Cultural Identity</u>
		5-minute break	
3:40 pm	Imani Mola	Psychology	<u>Associated Cultural Factors in the Political Participation of First and Second-generation Immigrants</u>
		15-minute break	
4:10 pm	Monserrat Esparza	Psychology	<u>Emotional labor impact on spillover, college students' academic motivation and mental health</u>
		5-minute break	
4:30 pm	Anabella Rocha	Psychology	<u>College Life in Today's Sociopolitical Climate: BIPOC Students' Challenges</u>
		5-minute break	
4:50 pm	Andrew Ruiz	Psychology	<u>The Role of Religiosity and Gender Identity Integration on Social Efficacy and Wellness among Sexual and Gender minorities</u>

Mountain Vista 2

Time	Scholar	Major	Research Title
3:00 pm	Camila Martinez-Olivas	Psychology	<u>A Language Brokering Study</u>
		5-minute break	
3:20 pm	Karla Murphy	Psychology	<u>Profiles of Non-Traditional College Students: A Cluster Analysis of Support, Grit, and Job Satisfaction</u>
		5-minute break	
3:40 pm	Irma Ramirez Moran	Psychology	<u>Building Bridges: A Participatory Approach to Racial Dialogue Within Latinx Intergenerational Relationships</u>
		15-minute break	
4:10 pm	Pamela Quinonez-Hernandez	Psychology	<u>Analyzing the Educational Implications of Formerly Incarcerated Students and their Experiences in the Cal Poly Pomona CSU System</u>
		5-minute break	
4:30 pm	Jamie Cortez	Psychology	<u>The Impact of Parental Absenteeism on Emotional Regulation in College Students</u>
		5-minute break	
4:50 pm	Brandon Manzanares	Psychology	<u>Male College Students' Perception of Red-Pill Online Community Engagement</u>

Campus Vista

Time	Scholar	Major	Research Title
3:00 pm	Gennevi Garcia	Psychology	<u>Does the Mental Timeline Influence Memory?</u>
		5-minute break	
3:20 pm	Mireya Chavarria	Psychology	<u>Lived Experiences of Imposter Syndrome and Resilience Among Undocumented College Students</u>
		5-minute break	
3:40 pm	Juan Alba-Rincon	Psychology	<u>Voices of Strength: The Intersection of Culture, Resilience and Sense of Belonging among Latino/a/x College Students</u>
		15-minute break	
4:10 pm	Julieta Garcia	Political Science	<u>Modern-Day Colonial Racism: Clinton's Operation Restore Democracy and The Voices of Resistance</u>
		5-minute break	
4:30 pm	Fatima Archundia	Social Work	<u>What is the relationship between race, ethnicity, culture, and the perception of adoption and fostering?</u>
		5-minute break	
4:50 pm	Alexis Yrigoyen	Anthropology	<u>Basque American Identity and Belonging Through Everyday Practice</u>
		5-minute Break	
5:10 pm	Nicole Sarabia	Anthropology	<u>Identity Preservation During the Spanish Inquisition: Understanding the Adaptation of Artifacts to Conceal Ritual Items and Practices</u>

Hillside Central 2

Time	Scholar	Major	Research Title
3:00 pm	Stephanie Jauregui	Chemistry	<u>Development of Electrochemical In-Situ Room Temperature Flow EPR Techniques</u>
		5-minute break	
3:20 pm	Faith Rosas	Biotechnology	<u>Determining the cellular proteins involved in assembly of Sulfolobus turreted icosahedral virus</u>
		5-minute break	
3:40 pm	Viren Kumar	Computer Engineering	<u>Post-Quantum Secure Telemetry for CubeSats and Earth IoT</u>
		15-minute break	
4:10 pm	Juan Diaz	Mechanical Engineering	<u>EV Battery thermal management systems</u>
		5-minute break	
4:30 pm	Jenni Puga Raya	Chemical Engineering	<u>Investigating the effect of Ozempic on human mesenchymal stem cell proliferation using Click-iT EdU assay.</u>

Abstracts and Biographies

Juan Alba-Rincon

Mentor: Dr. Rachel Baumsteiger

Project Title: Voices of Strength: The Intersection of Culture, Resilience and Sense of Belonging among Latino/a/x College Students

Abstract:

Latinx university students often face intersecting and very specific challenges, including socioeconomic barriers, rigid gender norms and stigma against the LGBT identities, significant immigration-related stress and competing responsibilities such as employment, caregiving, and parenting. These factors can negatively affect their academic and personal experiences and sense of belonging. On the other hand, cultural values that can serve as support systems against these obstacles, components like religiosity, social engagement, and strong family values are some of the cultural assets that serve as protective factors and help Latino students overcome these systemic barriers that most face daily. While prior research has extensively examined the impact of stressors on student outcomes, less attention has been given to how culturally rooted values shape students' decision-making, persistence, and ability to navigate these challenges. Understanding the role of inherited cultural values is critical for recognizing strengths within Latinx communities rather than focusing just on deficits. This study addresses this gap by examining the role of cultural values in shaping the academic experiences of Latinx university students. Using a mixed-methods approach the study analyzes both quantitative survey data and qualitative open-ended responses from students at California State Polytechnic University, Pomona. Findings might suggest that cultural values, particularly family-based motivation, plays a key role in fostering resilience, even as students navigate emotional stress and structural barriers. Overall, this research aims to contribute to a better understanding of the protective role of cultural identity, and highlights the importance of recognizing cultural strengths within Latinx communities and their role in supporting resilience and psychological well-being.

Biography:

Juan Alba-Rincon is a fourth-year undergraduate at California State Polytechnic University, Pomona, majoring in Psychology. He transferred from Mt. San Antonio College, where he began his academic foundation. At Cal Poly Pomona, he is actively involved in on-campus, particularly in student-faculty interactions. He also serves as the research lab manager of the Prosociality and Well-being lab, where his current research focuses on underserved and minority populations, such as first generation college students, and immigrant communities, and how they navigate through the educational system. His other research interests are also looking at the brain-behavior relationships and how these impact on learning, decision-making, development, and well-being, particularly in Latino communities. He plans to complete a Ph.D. program in clinical psychology or educational psychology and aspires to become a professor leading his own research lab.

Abstracts and Biographies

Fatima Archundia

Mentor: Dr. Kathryn Daniels

Project Title: What is the relationship between race, ethnicity, culture and the perception of adoption and fostering?

Abstract:

Adoption is recognized as a response to countless numbers of children who are in need of a stable and welcoming household. The act of adopting can be impacted by cultural norms, such as racialized and cultural assumptions that can cause an effect of being able to join a family. This leads to many adoptive families being unwilling to take on children with different cultural and racial backgrounds as themselves. In addition, many children are excessively harder to place in homes due to differences in culture and race between the child and the adoptive/foster family. As well as social perceptions of family structure, implicit biases, and varying levels of cultural awareness can further shape attitudes towards adoption and fostering. Historical inequalities and disparities within the child welfare system have also contributed to the overrepresentation of children from minoritized backgrounds. Using original survey data and quantitative analysis, this study investigates the relationship between race, ethnicity and culture and perceptions of adoption and fostering. The implications of these findings are significant for all parties involved. The findings of this study can inform the development of support systems that equip families with the cultural competence needed to meet the social and emotional needs of children in adoption and fostering. Furthermore, this study highlights the importance of addressing structural and systemic barriers that may discourage adoption or fostering. Ultimately, this study contributes to efforts aimed at increasing adoption and foster rates of children, ensuring that more children in need are placed in safe, and supportive homes.

Biography:

Fatima Archundia is a fourth year undergraduate student at California Polytechnic University, Pomona who is studying Social Work and a minor in Psychology. During her years as an undergrad, she has continued to grow her knowledge and resilience working for the YMCA as an Assistant Director for their after school programs. She has ongoing communication and proficiency in serving the children, families, and community she works alongside with. She plans to receive her Masters of Social Work to continue serving children in the foster system. Her short term goals include continuing her research on the perceptions of adoption and fostering to help eliminate certain stigmas or misinformations in the adoption and foster field. Her long term goals include furthering her education while working alongside amazing teams assisting children and teens.

Abstracts and Biographies

Mireya Chavarria

Mentor: Dr. Philippe Duhart

Project Title: Lived Experiences of Imposter Syndrome and Resilience Among Undocumented College Students

Abstract:

The term “imposter” typically refers to someone who intentionally deceives for personal gain. This label is unjustly imposed on undocumented immigrants. Individuals seeking safety, opportunity, and belonging. Despite their deep contributions to the U.S. communities and economy, undocumented individuals are treated as outsiders, with their humanity reduced to a legal status. For undocumented students, this external label intersects with internal experience with imposter syndrome in unique ways. Imposter syndrome is not just a matter of internal self-doubt for these students, but also an identity imposed by structural exclusion and social narratives to frame students as “imposters,” regardless of their achievements. Although existing research highlights the challenges faced by Latinx and first-generation students, it often overlooks the distinct realities of students from undocumented families. Their experiences are frequently blended with broader categories, erasing the specific pressures they face. These students also actively develop resilience strategies that enable them to persist in environments that are not designed to include them. Recognizing both the weight on imposter syndrome and the strength of their resilience is essential to understanding their full experiences. Results indicate that these students have additional stressors beyond those of their peers, including barriers related to financial aid eligibility, higher education access, and ongoing financial responsibility to their families. These pressures are intensified by internalized expectations to succeed alongside persistent feelings of inadequacy and lack of belonging. These results suggest that these challenges do not reflect a lack of ability, these students already possess the skills and resilience necessary for success. The responsibility lies within institutions to provide equitable support. Stronger institutional resources and support can help transform self-doubt into confidence and foster long-term success for these students.

Biography:

Mireya Alexandra Chavarria is a fourth-year undergraduate student at California State Polytechnic University, Pomona, majoring in Psychology. She currently works as a Registered Behavior Technician, providing services to children with autism, an experience that has deeply shaped her clinical interests in becoming a child psychologist. Her research focuses on accessibility within marginalized communities, particularly Latinx populations. Mireya is committed to fostering environments that prioritize accessibility, cultural responsiveness, and family engagement, supporting clients in developing healthier relational patterns and emotional regulation skills. She aspires to work in private practice, offering both individual and family therapy while remaining actively involved in early intervention services. In the long term, she plans to pursue doctoral-level training to further integrate clinical practice with research and advocacy.

Abstracts and Biographies

Jamie Cortez

Mentor: Dr. Rachel Baumsteiger

Project Title: What is the relationship between race, ethnicity, culture and the perception of adoption and fostering?

Abstract:

Parents are considered the primary agents of children's emotional socialization (Eisenberg et al., 1998). When a parent is absent, or unable to be physically or emotionally available, it can have long-lasting effects on a child's development. Parental absenteeism has been associated with negative academic outcomes, behavioral problems, anxious and depressive symptoms, and increased risk of issues related to alcohol and drug use (Constantinescu et al., 2025; Lin et al., 2025; Mao et al., 2020). Despite these previous findings, few studies have examined the possible effect of parental absenteeism on emotional regulation, especially not in college students who would most benefit from developing more adaptive strategies to deal with the high risk of stress and mental health symptoms that occur during college (Regehr, Glancy, & Pitts, 2013). The purpose of this study is to employ a mixed-methods approach to extend previous literature on parental absenteeism in regard to its effect on emotional regulation later in life and to shed more light on the parental absenteeism experience. The sample included 81 college students (69% female, 28% male, 3% non-binary; mean age = 22.40; 15% Asian/Asian American, 53% Hispanic/Latinx, 11% White, 15% Biracial/Multiracial, 6% another race/ethnicity). Participants completed a confidential online survey through a university research pool in which they rated the extent to which each caregiver in their childhood was physically or emotionally present on a 5-point Likert scale. The survey also included the emotional regulation questionnaire (Gross & John, 2009), open-ended questions regarding their experience with parental absenteeism, and demographic questions. A correlation analysis found a small positive correlation between emotional absence of the first caregiver listed and expressive suppression, $r(79) = .28, p = .013$. In the open-ended responses, participants shared comments such as, 'She was not very approachable, I felt like walking on eggshells around her.' and 'I never felt like I could approach him whenever I was going through something.' These findings suggest that parental absence affects the way students' deal with difficult situations and emotions. Learning more about this could help professors, campus services, and practitioners more effectively support college students dealing with stress.

Biography:

Jamie Cortez is a senior undergraduate student majoring in Psychology at California State Polytechnic University, Pomona. She is a first generation transfer student who began her journey in Mt. San Antonio College earning associates degrees in psychology, sociology, and social justice. As a McNair scholar at CPP, she has delved deeper into her interests by conducting research on the effects of parental absenteeism on college students and how it correlates their emotional regulation. She has also supplemented her educational journey in psychology by working in customer service and an internship assisting the Career Center. Her passions lie in supporting students in higher education that hail from disadvantaged communities with a multicultural lens and hopes to do that through her future research, internships, and graduate school prospects in the year after she graduates and beyond.

Abstracts and Biographies

Juan Diaz

Mentor: Dr. Alejandra Hormaza

Project Title: EV Battery thermal management systems

Abstract:

This study will evaluate whether a liquid-cooled base plate can adequately manage the heat generated by high-C-rate operation of 21700 lithium-ion cells and will compare its performance to companion work on dielectric immersion cooling using deionized (DI) water. I focus on a single battery module composed of Molicel INR-21700-P60C cells subjected to fast charge and discharge conditions between 0.5C and 5C. In this project, I represent each cylindrical cell as a homogeneous solid with volumetric heat generation derived from the nominal capacity, internal resistance, and selected C-rate, and I solve the resulting three-dimensional steady-state conjugate heat-transfer problem in ANSYS Fluent. My specific contribution is to investigate a liquid-cooled base plate beneath the cell array by systematically modifying the plate geometry and operating conditions, including internal channel layout, channel dimensions, and coolant mass flow rate for water at different inlet temperatures. For each base-plate configuration, I compute the maximum cell temperature and cell-to-cell temperature gradients in order to assess whether realistic geometric and flow-rate adjustments can keep the module within common electric-vehicle design limits for absolute temperature and temperature non-uniformity during high-C-rate operation. I then interpret these results alongside the team's DI-water immersion cooling simulations of the same cell type and loading conditions, using consistent metrics such as peak temperature, spatial temperature gradients, and thermal margin relative to recommended limits. In addition, I estimate the relative design complexity, cost, and practicality of the base-plate modifications compared with immersion cooling by considering changes in coolant requirements, pumping power, and manufacturing complexity associated with more intricate channel geometries. Through this work, I aim to show that even with optimized channel layouts and increased mass flow rates, conventional base-plate water cooling approaches a thermal limit at the highest C-rates, while the immersion-cooled configurations studied by my collaborators offer a larger thermal safety margin for fast-charge and fast-discharge applications, albeit with additional system-level trade-offs.

Biography:

Juan Diaz is a junior Mechanical Engineering student at California State Polytechnic University, Pomona. He is a McNair Scholars Program scholar and a lifetime member of the Society of Hispanic Professional Engineers, where he remains actively involved at the chapter level. Juan has conducted summer research in the biological sciences and currently focuses on battery thermal management systems, utilizing CFD simulations to evaluate and compare cooling strategies. As a first-generation Latino college student and father from South Los Angeles, he brings resilience and purpose to his academic journey. His short-term goal is to gain industry experience in his research field, while his long-term goal is to pursue graduate studies and contribute to advancing battery technologies for real-world applications.

Abstracts and Biographies

Montserrat Esparza

Mentor: Dr. Sara Langford

Project Title: Emotional labor impact on spillover, college students' academic motivation and mental health

Abstract:

Emotional Labor is when one expresses specific, usually positive, emotions towards others, regardless of internal emotions. It can be seen within the service industry, which is a common source of jobs for many college students. Research on emotional labor notes its many detriments on mental health, work-related outcomes, and even other aspects of one's life (i.e. "spillover"). The current literature is extensive, but little attention is paid to working college students, and how it impacts their academic life. This study aims to shed light on emotional labor among college students and how it may impact their mental health, academic motivation, as well as spillover into their academic environments. We hypothesize that with higher emotional labor, there will be higher negative spillover and poorer mental health. We also hypothesized that engaging in emotional labor would relate to decreased academic motivation. The current study gathered data from 116 employed students from Cal Poly Pomona. Participants were given a survey measuring emotional labor, negative and positive spillover, mental health (anxiety and depression), and their academic motivation. Information on their work hours and academic units was also collected. A Pearson correlation indicates increased emotional labor was related to more negative spillover, $r = .362$, $p = <.001$. Additionally, increased emotional labor related to higher levels of both depression ($r = .405$, $p = <.001$) and anxiety ($r = .381$, $p = <.001$). Effect sizes were large, with emotional labor accounting for 13.10% of the variance in negative spillover, 16.40% in depression, and 14.52% in anxiety. Contrary to expectation, increased emotional labor related to higher extrinsic motivation ($r = .205$, $p = .027$), however amotivation did relate positively to emotional labor ($r = .201$, $p = .031$), indicating a potential relationship to lowered academic motivation. Effect sizes for these relationships were much smaller, though, accounting for only around 4% of the variance in motivation. Results indicate that students' work impacts their academic life and, in part, their motivation. Students may need additional mental health resources when it comes to balancing work and life, and potentially this help could address their academic motivation.

Biography:

Monserrat Esparza is a senior at California State Polytechnic University, Pomona studying Psychology. In her previous years, she attended Mount San Antonio Community College. She has a micro internship with the Career Center on campus working or tabling at events. She currently is an active member of Dr. Alejandro Morales' research lab investigating issues related to marginalization of those with an LGBTQ+ and/or racial minority identity, and is simultaneously completing her own McNair project on emotional labor and its relationship on spillover, college students' academic motivation, and mental health. In addition, she is on the McNair Scholars Program E-Board in which she serves as the scheduler. Her short-term plans include taking a gap year to decide which Ph.D. program will be best for her research interest in disaster psychology and trauma. In between she is hoping to volunteer in related fields of interest while working. Her long-term plans adhere to working with populations impacted by disasters and shape policy. She also aims to become a professor to help mentor students and aid them like she has been aided by her mentors.

Abstracts and Biographies

Gennevi Garcia

Mentor: Dr. Kevin Autry

Project Title: Does the Mental Timeline Influence Memory?

Abstract:

Previous research demonstrated that time is conceptualized with spatial metaphors known as the mental timeline (Boroditsky, 2000). The direction of the mental timeline varies across populations depending on cultural and linguistic distinctions. For example, native English speakers who read from left to right represent past on the left and future on the right while native Arabic speakers who read from right to left represent past on the right and future on the left (Tversky et al., 1991). Further research demonstrated that manipulating reading direction with mirror-reversed and rotated text can change the direction of the mental timeline (Casasanto&Bottini, 2014). The purpose of this study is to explore whether the mental timeline affects memory of temporal information in congruent and incongruent spatial locations. Specifically, we tested if studying drawings of common items (from Saj et al., 2013) with past/future associations on the left or right side of a screen will affect the participants' memory. Participants were first introduced to a character named David. The black and white line drawings were divided into four blocks of 10 items: food (e.g., apple), activities (e.g., football), clothes (e.g., belt), and objects (e.g., lamp). Above each item, the image of a young boy was displayed to represent that David liked the item "10 years ago" or the image of an older man was displayed to represent that David will like the item "in 10 years". A short "I Spy" memory task was included before the memory test as a filler task. The participants then viewed each item and four unstudied items in the center of the screen and used one of three buttons to respond "Yes, 10 years ago", "Yes, in 10 years", or "No." We hypothesize that participants will recognize items and recall the temporal association more accurately when items are presented in the spatial location that is congruent with their mental timeline than when the spatial location is incongruent. Since different languages produce different mental timelines, appropriate spatial layouts would not be universal across cultures. Better understanding of these distinctions can help create more inclusive applications of the mental timeline.

Biography:

Gennevi Garcia is a fourth-year undergraduate student at California State Polytechnic University, Pomona who is studying Psychology. In her previous years, she studied at Mount San Antonio College and continues to volunteer/intern with numerous organizations and works three jobs as a K/1st afterschool teacher, Spanish tutor, and a private art instructor. Her current research focuses on the mental timeline and the effects on temporal memory. With her interest in neuropsychology, she is involved in the mental process lab that offered her hands on experience with electroencephalogram (EEG) training. Her long-term goal is to earn a Ph. D in Psychology with an emphasis on Neuropsychology.

Abstracts and Biographies

Juliett Garcia

Mentor: Dr. Marco Scauso

Project Title: Modern-Day Colonial Racism: Clinton's Operation Restore Democracy and The Voices of Resistance

Abstract:

Haiti is historically recognized as the first black nation in the Western Hemisphere. Enslaved Haitians revolted against their French enslavers in 1804 through a liberal notion of man's right to freedom. However, though Haitian revolutionaries stood on similar political ideals as the US, they were politically ostracized simply because they were black. Racist narratives did not dissipate from the modern world; they simply took an alternate form and became tools to justify political exclusion and detention of minorities, even when they are asylum seekers, as this study will show. Since Haiti's independence, the country has been riddled with corruption, coups, and financial instability, which have inhibited a liberal democracy from taking root. The first democratic election in Haiti was held in 1990, and a coup followed shortly after, invoking a violent humanitarian concern, causing Haitian civilians to flee to the US as asylum seekers; however, they were not welcomed with open arms and were detained and held at Guantanamo Bay, as well as other detention centers. This study examines racist narratives that the Clinton Administration used as justifications to hold an intervention in Haiti while simultaneously excluding Haitian asylum seekers from U.S. democracy in the 1990s. The second part of this study aims to understand the perspectives of those who experienced the alternative, as well as those who stood against the Clinton Administration's paternalistic biases through activism and resistance. These alternate perspectives come from American activists, American politicians, and most importantly, the Haitian detainees themselves. Through a critical decolonial interpretive analysis, the perspectives of both the oppressor and the oppressed illustrate an understanding of how colonial racism still thrives and is continuously utilized against vulnerable marginalized groups, but is seen as "Diplomatic Foreign Policy." While also unveiling an alternate perspective that continues to be suppressed because of colonial racism, and fails to reveal the experiences of modern-day minorities at the end of the US's political stick.

Biography:

Juliett Garcia is a senior political science major from Cal Poly Pomona. Before her work in the McNair Scholars program, she interned with her now-mentor in her sophomore year and worked as an archival research assistant. After this position ended at the end of the year, she aided her Mentor in cultivating a lab focused on decolonial interpretive research and has remained a member of this lab ever since. In this space, she wrote multiple research papers, attended professional conferences, competed in undergraduate research conferences, and aims to continue her higher education, planning to attend CGU for a PhD in political science PhD in Fall 2026. She invokes her politics in all of her work, centering on anti-racism, immigration, detention, foreign policy, specifically in Latin America, and pluriversality; the notion that we live in a world of many worlds, and each world has the right to stand as equals, without hegemonic hierarchies.

Abstracts and Biographies

Stephanie Jauregui

Mentor: Dr. Chantal Stieber

Project Title: Development of Electrochemical In-Situ Room Temperature Flow EPR Techniques

Abstract:

Rising CO₂ levels have sparked interest in reactive capture and conversion (RCC) to directly convert CO₂ into valuable fuel and chemicals such as methane, formic acid, and methanol. However, electrochemical reduction of CO₂ can be hindered by electrode corrosion, and the characterization of reaction intermediates is challenging. Electron paramagnetic resonance (EPR) could be used to detect species formed in solution during electrolysis that have an unpaired electron. EPR studies typically use freeze-quench methods to capture intermediates at a given time point, so there is a critical knowledge gap in developing in-situ room temperature EPR. This work aimed to develop an in-situ room temperature flow EPR method to track species formed in real time during electrochemical CO₂ reduction to determine kinetics and mechanisms for reduction. This work built a new flow EPR system to successfully track the kinetics of copper corrosion during electrolysis by the detection of a Cu²⁺ species. The EPR measurements showed the formation of an octahedral Cu²⁺ species and showed the corrosion of the copper electrode increasing over time as it reacted with the captured CO₂ source (ammonium carbamate). The system was also applied to study radical CO₂ reactions with unsaturated olefins. With the use of a spin trap (5,5-Dimethyl-1-pyrroline N-oxide), the new flow EPR technique detected different signals of unpaired electron species. Combined, these studies establish a new spectroscopic technique for probing complex electrochemical reactions and identifies copper corrosion products in electrochemical CO₂ reduction. These results will ultimately lead to more effective CO₂ reduction strategies to better mitigate climate change.

Biography:

Stephanie Fabiola Jauregui is a third-year undergraduate at California State Polytechnic University, Pomona majoring in Chemistry. Since joining Environmental Club in high school, she has become a big advocate for sustainability and reducing her carbon footprint. Her current research focuses on in-situ room temperature characterization techniques for electrochemical CO₂ reduction which is a promising method of mitigating climate change by turning CO₂ into valuable fuels and chemicals. She plans to receive a Ph.D. in Chemistry where she can continue electrochemical research. Her long-term career goal is to work as a research scientist in industry or at a national laboratory, where she can continue to contribute to global efforts to mitigate climate change.

Abstracts and Biographies

Viren Kumar

Mentor: Dr. Mohamed El-Hadedy Aly

Project Title: Post-Quantum Secure Telemetry for CubeSats and Earth IoT

Abstract:

This study will investigate how to implement post-quantum security within the strict resource constraints of embedded systems, with a focus on space-based and distributed telemetry applications. Modern satellite and IoT communication systems rely heavily on classical cryptographic schemes such as RSA and ECC, which are vulnerable to future quantum attacks. As quantum computing advances, the risk of “store now, decrypt later” threatens long-duration missions and critical infrastructure, making proactive adoption of post-quantum cryptography essential. Our approach is to design and implement a crypto-agile secure telemetry stack that integrates post-quantum key establishment (e.g., Kyber / ML-KEM), digital signatures (e.g., Dilithium / ML-DSA), and lightweight authenticated encryption (e.g., Ascon AEAD). To address the computational overhead associated with these algorithms, we propose accelerating lightweight cryptographic primitives using FPGA-based hardware. This enables higher efficiency, reduced latency, and deterministic performance, which are critical for real-time communication in constrained environments such as CubeSats. The system architecture supports secure communication from spacecraft to ground stations and onward to Earth-based gateways, ensuring authenticated command execution, encrypted telemetry transmission, and protection against replay or tampering attacks. By offloading cryptographic operations to hardware, the system minimizes energy consumption per message and meets strict power and timing budgets inherent to embedded platforms. Ultimately, this work aims to demonstrate that post-quantum security can be made practical for real-world embedded deployments, including drones, satellites, and mobile systems. By combining emerging cryptographic standards with hardware acceleration, this study contributes to a scalable and forward-compatible framework for securing next-generation communication systems against quantum-era threats.

Biography:

Viren Kumar is a dual-major undergraduate in Computer Engineering and Applied Mathematics at California State Polytechnic University, Pomona. His work focuses on hardware–software co-design, embedded systems, and computational methods, with an emphasis on secure, performance-constrained architectures. As a McNair Scholar, he has conducted research involving FPGA-based prototyping, cryptographic systems, and LoRa-based CubeSat communication, gaining experience in implementing secure communication protocols under real-world constraints. His broader research interests include cryptography, numerical methods, and system optimization, particularly in environments with strict power, latency, and resource limitations. He has also contributed to projects in thermal system design and hardware optimization, and has a strong foundation in mathematical modeling, stochastic processes, and algorithmic problem solving. Viren aims to pursue a Ph.D. focused on hardware-aware computational systems and next-generation secure architectures, with the goal of developing scalable, efficient solutions for emerging challenges in embedded and distributed systems.

Abstracts and Biographies

Brandon Manzanares

Mentor: Dr. Marie Lamothe-Francois

Project Title: Male College Students' Perception of Red-Pill Online Community Engagement

Abstract:

College students' perspectives regarding online communities' influence of gender narratives and the ways this can impact their interpersonal interactions is an essential topic. In these social spaces, there are a series of cultural shifts. One such movement, of the Red-Pill ideology (RPI), consists of perspectives that highlight male supremacy and reinforce antifeminism (Botto & Gottzen, 2024). Self-esteem, personality factors, and compulsive online engagement are highly relevant variables in understanding gendered online-community dynamics. Recent research on these communities have yielded significant results regarding these conservative, male dominated spaces. As research has begun to explore Red-Pill communities, limited academic studies focus on college students as a demographic. The main purpose of this study is to ascertain characteristics of young male college students who participate in and adopt red pill ideologies. This study will also investigate the role of self esteem, online use, and personality traits on male college students' susceptibility to the Red Pill communities' misogynistic ideologies. The number of participants for this study will be about 65-70 undergraduate college students that come from diverse backgrounds. This study will utilize a mixed methods approach. Participants will provide information about their perceptions regarding cultural and familial influence on gender role perspectives. The Rosenberg Self-Esteem scale, the Compulsive Internet Use Scale, and the Big Five Inventory-2 to obtain quantitative data. Findings will likely demonstrate that college students' robust online presence, coupled with self-esteem, and their personality will all be influential factors of their perception, interactions, and susceptibility to ideologies of the Red-Pill online communities.

Biography:

Brandon Manzanares is a third year undergraduate at California State Polytechnic University, Pomona, pursuing a degree in Psychology. He is a well balanced student, devoting time to coursework, his McNair research project, and multiple part time positions. His current research project examines the variables that might be at play in persuading young men to find "Red Pill" content online appealing. He uses proven reliable variables of measurement like Self-Esteem and Personality traits to demonstrate what susceptibility really looks like for young men joining "pipeline" ideologies. He has big plans to one day be a marriage and family therapist, bringing this service back to his home town as an adult. During the Fall 2026 semester, he will be in the application process of multiple in and out-of-state graduate school programs.

Abstracts and Biographies

Camila Martinez-Olivas

Mentor: Dr. Michael T. Giang

Project Title: A Language Brokering Study

Abstract:

To help families navigate linguistically and culturally complex settings, children and young adults are often tasked to engage in language brokering (LB; i.e., informal translation and interpretation tasks). Existing research primarily focuses on children and adolescent brokers, its negative outcomes (e.g., stress, anxiety, depression), and seldom differentiates where language brokering occurs. With a focus on young adults, the present study examined: 1) the extent individuals broker in low-risk situations (e.g., home, school, and markets or stores) and high-risk situations (e.g., medical, financial, or legal offices); 2) the impact of these experiences on language brokering positive attitudes (i.e., feelings of pride and independence due to LB), and negative attitudes (i.e., feelings of burden or embarrassment due to LB); and 3) whether LB promotes cultural knowledge (e.g., enhances understanding for one's languages and cultures) and cultural disconnections (e.g., brokering leads to language and culture loss). University participants (N = 371) completed established and modified measures on LB for low and high-risk contexts experiences, positive and negative attitudes, cultural knowledge, and cultural disconnection. Descriptive results show that 89% of college students LB in low-context situations, while 54% broker in high-context settings. To test hypotheses on the influence of low and high-context brokering on attitudinal measures, a series of multiple regressions were conducted. Consistent with previous research, low-context brokering predicted significantly higher feelings of positive attitudes ($B=.108, p < .01$) and cultural knowledge ($B=.079, p < .05$), but did not significantly predict negative attitudes ($B=-.035, ns$) nor cultural disconnections ($B=-.006, ns$). High context brokering significantly predicted higher cultural disconnections ($B=.061, p < .05$) but was not a significant predictor of negative attitudes. Contrary to expectations, high-context brokering significantly predicted higher positive attitudes ($B=.088, p < .05$) and cultural knowledge ($B=.135, p < .05$). These findings suggest that engaging in LB across both low and high-context situations generally foster positive and culturally affirming attitudes among young adult language brokers. As multilingual families and college students represent a growing demographic in the U.S, implications will be discussed to better understand how university and community support services can provide multilingual assistance.

Biography:

Camila I. Martinez-Olivas is a senior undergraduate at California State Polytechnic University, Pomona, where she is studying for her bachelor's in Psychology. In her previous years, she took courses at Bakersfield College, where she developed her interest in early childhood development and sparked her passion for school/educational psychology. In her time at Cal Poly Pomona, she has made the most of her opportunities by conducting research on multilingual individuals, school racial climate, and cultural identity development, as well as gaining applied experience working with children in a community setting and shadowing a school psychologist. She will begin a Ph.D. program in School Psychology at Northern Illinois University in the fall, where she plans to conduct research focused on English as a Second Language (ESL) students. Through this training, she aims to further develop the academic and professional skills necessary to support underserved communities. Her long-term goal is to earn her Ph.D. and return as a faculty member, where she can mentor students, conduct impactful research, and give back to the communities that shaped her academic journey.

Abstracts and Biographies

Imani Mola

Mentor: Dr. Lori Barker

Project Title: Associated Cultural Factors in the Political Participation of First and Second-generation Immigrants

Abstract:

A common problem in psychology research is that it has largely favored the WEIRD (Western, Educated, Industrialized, Rich and Democratic) population and uses broad cultural groups when analyzing data. This can affect how research is used in the application or understanding of behavior. A lack of a multicultural perspective was clear in the analysis of 2024 election research. This election was historic in many ways. It had the 2nd-highest voter turnout rate since 1908 and was one of the most polarizing in recent history. One of the biggest deciding issues in this election was immigration. Researchers often used broad (often racial) categories to analyze political decision-making and attitudes, particularly those of American immigrants. Inaccurate predictions and misinterpretations of behavior and attitudes are the result of using such overgeneralized categories, which ignore the subtleties of smaller group differences in behavior. This study aims to use a multicultural perspective to examine differences in political participation within the community across multiple immigrant groups living in Southern California. Using Berry's level of acculturation model, we investigate how an immigrant's connection to their host country (country immigrated to) may affect how and how much they politically participate. Then using power distance and uncertainty avoidance from Hofstede's dimensions of culture, we investigate differences across cultural attitudes of immigrants from a variety of countries.

Biography:

Imani Mola is a fourth year, undergraduate student studying Psychology and Political Science at California State Polytechnic University, Pomona. She spent two years studying Psychology, Political science and Biology at Mesa College in San Diego where she got her Associates for Transfer with High Honors. Her research interest lies in the differences across cultural relationships and how that affects decision making, social behavior and politics. After graduating, Imani plans to get a PhD in Social Psychology, continue research and eventually teach as a professor. Additionally, she wants to continue working to apply social science research to real world problems and help shape policies that will lead to tangible benefits for the community.

Abstracts and Biographies

Karla Murphy

Mentor: Dr. Michael T. Giang

Project Title: Profiles of Non-Traditional College Students: A Cluster Analysis of Support, Grit, and Job Satisfaction

Abstract:

Non-traditional college students (NTCS) are often perceived as a homogenous group of older adults, parents, and second-chance learners. They return to school for various reasons, including lifelong educational goals, further advancing their careers, obtaining new skills, or changing their careers altogether. While studies have often focused on university-related factors and barriers to their success (e.g., support services, access to resources, ageism), less is known about the characteristics, personal motivations, and psychological factors that drive NTCS. Using cluster analyses, the present study focused on a persons-centered analytic approach, developing profiles and subgroups of NTCS based on 3 key internal factors: level of grit (passion and perseverance for long-term goals), perceived social support from family and friends, and overall job satisfaction. This approach allows for a more nuanced understanding of the internal motivations that differentiate NTCS and may contribute to their success and return to higher education. Using Wave 5 from the National Longitudinal Study of Adolescent Health (Add Health), 145 participants (ages 33 to 43) were identified as non-traditional college students. Items for family and friends support, job satisfaction, and grit were standardized in the cluster analyses. Results identified three clusters of distinct NTCS. The Thrivers (n=65) showed above average family and friend support, above average job satisfaction and moderate grit. The Socially Anchored cluster (n = 40) participants reported moderate family and friend support, low job satisfaction, and low levels of grit. The Self-Reliant (n = 40) shared low family and friend support, average job satisfaction and low grit. As the number of NTCS increases, institutions should adopt the necessary changes to better meet their needs in terms of support services for students similar to Thrivers, Socially Anchored, and Self-Reliant clusters. These changes include providing access to campus resources during day and evening hours, offering mentorship, workshops and events that foster community, networking, and a sense of belonging. These programs will enable NTCS to succeed academically and socially while promoting continued enrollment and persistence, thereby reducing attrition.

Biography:

Karla Murphy is a first-generation student and parent of four children. She earned associate degrees in psychology and sociology at Mount San Antonio College and will complete her bachelor's degree in psychology in Spring 2026 at California State Polytechnic University, Pomona. Karla is a Ronald E. McNair Scholar (Cohort 27) and conducts research in the Standard Deviants Research Lab under the supervision of Dr. Michael Giang. Her current research examines profiles of non-traditional college students and explores how factors such as social support, grit, and job satisfaction contribute to their academic persistence and return to higher education. In addition to her academic work, Karla serves as a School Site Council parent representative at her children's local high school. She plans to pursue a master's degree in Marriage and Family Therapy and hopes to provide culturally responsive mental health services to underserved families, particularly within Hispanic/Latino communities.

Abstracts and Biographies

Devon Pizano

Mentor: Dr. Lori Barker

Project Title: Autism, Depression, and Anxiety in College Students

Abstract:

Autism spectrum disorder reflects a diverse range of human experiences, and co-occurring conditions such as depression and anxiety add further complexity. Prior research has often emphasized autistic individuals with higher support needs, leaving college students with lower support needs understudied. Estimates suggest that 0.7–1.9% of college students meet criteria for high-functioning autism (White et al., 2011), and masking autistic traits has been linked to suicidal thoughts and behaviors (Cassidy et al., 2019). This study examined whether autism traits are positively correlated with depression and anxiety among college students (N = 140; 64.3% female, 30% male, 2.2% nonbinary, 2.9% transgender; Mean age = 22.8). Measures included the PHQ-9 (depression), GAD-7 (anxiety), and RAADS-14 (autism). Results showed small but significant correlations between autism traits and depression ($r = -.36, p < .01$) and between autism traits and anxiety ($r = -.39, p < .01$). Implications for supporting autistic college students will be discussed.

Biography:

Devon Pizano is a senior at CPP who is studying Psychology. In his previous years, he studied at Chaffey College and continues to volunteer as a crisis counselor and train as an ABA therapist. His current research delves into autism and mental health in college students. He plans to receive his Ph.D. in Clinical Psychology where he can gain the tools needed to academically and socially benefit his community through clinical private practice, research, and service. His short-term plans include continued research on autism and helping the autistic community as an ABA provider. His long-term plans are to work in clinical private practice to reduce stigma in neurodivergent community. During the Fall semester of 2026 he will apply to graduate school programs.

Abstracts and Biographies

Jenni Puga-Raya

Mentor: Dr. Yuanxiang (Ansel) Zhao

Project Title: Investigating the effect of Ozempic on human mesenchymal stem cell proliferation using Click-iT EdU assay.

Abstract:

Ozempic is widely used for diabetes and weight loss; however, its effects on human mesenchymal stem cells (hMSCs) remain highly unexplored. Because hMSCs are essential for tissue repair and homeostasis due to their multipotent nature, understanding how long-term drug exposure influences their proliferation is important. This study examines whether Ozempic pretreatment alters hMSC proliferation capacity using a 60-day pretreatment timeline followed by a Click-iT EdU analysis. hMSCs were exposed to varying concentrations (10, 50, or 250 nM) of Ozempic or maintained as untreated controls for 60 consecutive days before being subjected to a proliferation assay that relies on the incorporation of EdU, a thymidine analog, in actively dividing cells. EdU can be detected with Alexa Fluor 488-labeled azide that clicks to the EdU, enabling the quantification of proliferating cells, while DAPI stains the DNA of all cells to help quantify total cells. When Ozempic was present during the proliferation assay, a statistically significant reduction in proliferation is observed at 10 and 50 nM concentrations ($p < 0.05$), but not at 250 nM. However, these differences were not statistically significant ($p > 0.05$) when assessed in the absence of Ozempic. These findings suggest that semaglutide may influence hMSC proliferation but this effect seems to be concentration-dependent and not maintained after the withdrawal of Ozempic. In addition, no clear concentration-dependent trend was observed. Additional studies are required to confirm these effects and further address the key gap in GLP-1 drug safety and regenerative biology, especially with the rapid increase in the commercialization of GLP-1 receptor agonist-based products.

Biography:

Jenni Puga-Raya is an undergraduate student in her second year at California State Polytechnic University, Pomona, studying Chemical Engineering and Chemistry. She previously attended Citrus College, where she developed a strong foundation in the biological sciences and an interest in research. Jenni is actively involved on campus as a Renaissance Scholars participant and MEPWISE Ambassador, and is part of Science Council where she currently serves as Treasurer for the 2025-2026 AY and will serve as the President in the 2026-2027 AY where she will lead and support student organizations within the College of Science. Jenni conducts research at City of Hope in a Radiation Oncology laboratory, where she studies oxidative DNA damage. She is particularly interested in cancer, neurological, and biomedical research. She plans to pursue an MD-PhD in Biomedical Engineering or Cancer Biology with the goal of contributing to impactful research and advancing healthcare. Jenni is committed to both scientific innovation and community engagement through mentorship and academic support initiatives.

Abstracts and Biographies

Pamela Quinonez

Mentor: Dr. Peter Hanink

Project Title: Analyzing the Educational Implications of Formerly Incarcerated Students and their Experiences in the Cal Poly Pomona CSU System

Abstract:

This study examines the educational implications that formerly incarcerated students may be experiencing in the Cal Poly Pomona CSU system. This focuses on the impacts on Project Rebound members, whether it was positive or negative. Through research, it's been learned that formerly incarcerated individuals will often face barriers when it comes to accessing higher education. They will face these barriers due to stigma, limited resources, or socioeconomic challenges. Due to this, we will often notice that formerly incarcerated individuals are less likely to earn a college degree compared to the general population. As a result, the purpose of this study is to gain a better understanding of how Project Rebound influences its active members social life, opportunities, and well-being. There will also be more understanding of the idea that re-entry support programs benefit incarcerated students formerly as they navigate and transition into higher education. The voice of resilience study will focus on 10 current enrolled CPP students and PR active members. While using structured interviews with 15 preset questions, through qualitative data. This data will be based on personal and lived experiences. The interviews will be based on 4 key themes, which include social life, opportunities, well-being, and looking further. The importance of this research is to highlight that access to education should be for everyone whether someone has a background and developing student and personal success. This research expects to find that formerly incarcerated students social life, opportunities, and well-being have increased after joining re-entry programs like Project Rebound.

Biography:

Pamela Quinonez is a fourth-year undergraduate student at California State Polytechnic University, Pomona, who is studying Psychology with a minor in Criminology. She has been actively involved throughout her four years, participating in different programs, for example, the Educational Opportunity Program (EOP) and Reading, Advising, & Mentoring Program (RAMP), and the McNair Scholars Program. Throughout her time at Cal Poly Pomona, she has gained life-filling experience, becoming the person she is today. Pamela continues to volunteer at the Pomona Unified School District through a community school program, where she supports high school students and the local community of Pomona. Her current research focuses on the educational experiences of formerly incarcerated students at Cal Poly Pomona. She plans to receive her Ph.D. in Clinical Psychology with an emphasis on forensic psychology. Her short-term plans are to gain experience within the justice system through an internship with the sheriff's department. During the fall semester of 2026, she plans on applying to in and out-of-state graduate school programs within forensic psychology

Abstracts and Biographies

Irma Ramirez Moran

Mentor: Dr. Soeun Park

Project Title: Building Bridges: A Participatory Approach to Racial Dialogue Within Latinx Intergenerational Relationships

Abstract:

Racial dialogues are inherently complex, particularly when influenced by intergenerational differences, cultural values, assimilation experiences, and intersecting identities. Within Latinx families, deeply rooted cultural values play a central role in shaping communication practices and maintaining familial harmony. Specifically, familismo and respeto emphasize strong family loyalty and deference to elders, which significantly influences how sensitive topics, such as race and discrimination are discussed. Prior research on Racial-Ethnic Socialization (RES) has largely characterized these conversations as unidirectional, typically flowing from parents to children, with little attention given to young adult-initiated dialogue. Despite this limitation, RES remains a critical process for families of color, as it supports identity development and intergenerational communication. This gap underscores the need to better understand and support reciprocal, cross-generational racial discourse within Latinx families. This project consists of two interconnected studies. Study 1 draws on qualitative data from 20 immigrant young adults of color and examines their lived experiences engaging in racial talk with family members. Analysis of the completed interviews identified four key components that support meaningful racial dialogue: openness and decentering, mutuality, genuine respect, and growth. Building on these findings, Study 2 uses a Participatory Action Research (PAR) framework to apply these components in practice and integrate them with Latinx cultural values to strengthen intergenerational family communication. Study 2 employs two interactive workshops as its primary methodology. Participants include four (n=4) Latinx young adults who are willing to engage in racial dialogue with elder family members. These interactive workshops are designed to introduce and deepen understanding of the four components, encourage reflection on personal and family experiences, and support the collaborative co-development of a culturally responsive Transformational Dialogue Toolkit. Ultimately, this research reflects a commitment to care, responsibility, and community. The toolkit is designed as an accessible and empowering resource for Latinx families in engaging in meaningful, healing conversations about race.

Biography:

Irma Ramirez Moran is a first-generation senior at Cal Poly Pomona, majoring in Psychology with a minor in Sociology. She is a proud transfer student from Los Angeles City College and continues to give back working as a tutor at the Writing Center. She serves as a research assistant in the I-RISE Lab, contributing to research on immigration experiences and cross-generational family dynamics. Her work is grounded in a decolonizing, community-centered approach that prioritizes lived experience, cultural knowledge, and collective voice as essential forms of expertise. As a mixed-methods researcher, she utilizes community-based participatory approaches and testimonio to uplift and empower cultural perspectives. Irma plans to pursue a Ph.D. in Counseling Psychology beginning in Fall 2026, where she aims to integrate research, teaching, and service to create meaningful, equity-focused impact. She is committed to developing culturally responsive interventions grounded in and reflective of the populations they serve.

Abstracts and Biographies

Mareen Riad

Mentor: Dr. Lori Barker

Project Title: The Impact of Immigration Age on Cultural Identity

Abstract:

This study examined factors that shape variation in individuals' cultural identity strength. We had 49 adult (18+) participants who speak English and are either immigrants or within three generations of an immigrant. Semi-structured virtual interviews explored how participants define culture, what culture means to them, and how they assess their cultural identity. Interview questions focused on language, community involvement, immigration experiences, and family influences. Exploratory, deductive, and thematic data analysis compared cultural identity, age at immigration, and immigration generation (first, 1.5, and second generation). By examining these patterns, we aimed to better understand how cultural identity shifts across generations and identify factors that support its retention. We also considered whether certain cultural backgrounds are associated with stronger cultural identity and what cultural features may contribute to this pattern. The following themes emerged: 1) Generation– First generation tend to have very strong cultural identities, 1.5 generation who immigrate alone tend to feel “othered,” second generation tend to be curious and want to put in the effort to be closer to their culture of origin. 2) Immigration Age– When 1.5 immigrate alone, they lose their language skills over time and feel “othered.” 3) Family/Community Support– First generation saw no influence of family and siblings unless parents were immigrants and didn't speak English, resulting in a push for the child to learn English and keep the cultural language. Second generation had an impact if the family emphasized the culture and language, which they tended to keep as a result. In terms of gender, females more often worked to preserve the culture and served as the cultural educator. 3.1) Peers– There were 2 common responses: fear of losing one's cultural identity, and the drive to surround oneself with peers of the same cultural background to retain cultural identity. 3.2) Community Involvement–being involved in the culture means being active with family and the broader community.

Biography:

Mareen Riad is a senior psychology undergraduate at California State Polytechnic University, Pomona. Mareen has volunteered at multiple organizations in the hope of interacting and working with people in a variety of environments, including at a foster care facility and with the Global Medical Brigades, where she went to Panama with a group of medics to serve local communities. Her current research focuses on factors that influence the immigration experience and cultural identity. In the future, she hopes to delve more deeply into familial relationships and observe what drives people to maintain a connection to their original culture despite living in a new one. Mareen plans on applying to Counseling and Clinical Ph.D. programs in the Fall of 2026.

Abstracts and Biographies

Anabella Rocha

Mentor: Dr. Tatiana Pumacchua

Project Title: College Life in Today's Sociopolitical Climate: BIPOC Students' Challenges

Abstract:

The America of today is one where politics are personal, and college students are acutely aware of it. Research supports that college students can experience intense feelings surrounding political phenomena, taking notice of its impacts on their livelihoods, campus environments, and communities. This profound emotional response, defined as sociopolitical stress, can be heightened in times of shifting sociopolitical contexts. Past literature has indicated that BIPOC (Black, Indigenous, and People of Color) students specifically are more susceptible to sociopolitical stress, given a higher likelihood of being impacted by prejudiced rhetoric and policy that have accompanied periods of political polarization. The purpose of this study was to investigate BIPOC college students' lived experiences following the 2025 presidential inauguration of Donald Trump, focusing on the challenges and supportive factors that they have encountered. The current body of research that has examined the college experiences of students under a Trump presidency has demonstrated that BIPOC college students reported an increase in overt and covert racism on their campus and broader society, as well as significantly higher levels of distress, anxiety, depression, and feelings of fear. Unfortunately, much of the current sociopolitical climate mirrors patterns recognized in prior literature. As such, it is essential to understand how BIPOC identity has influenced students' experiences, bringing attention to the consequences of racism and prejudice. Furthermore, it is crucial to understand the sources of support that BIPOC college students utilize when confronting such challenges. Supportive factors that current literature has identified for BIPOC college students during times of sociopolitical uncertainty include engaging in acts of resistance, community building, and identity exploration. The current study sought to investigate, through semi-structured interviews, how BIPOC college students are engaging with and are impacted by the current American sociopolitical landscape, addressing the paucity of research in this area. Moreover, this study utilized a content analysis to identify emerging themes. Study findings illuminate the ways in which BIPOC college students are challenged or empowered in times of political volatility, centering their identities and highlighting domains of well-being, and social, academic, and institutional support.

Biography:

Anabella Rocha is a fourth-year psychology student at California State Polytechnic University. Anabella has demonstrated a dedication to serving diverse populations through her research and professional experience. She is a research assistant for the Socioemotional Lab, conducting research focused on the implementation of social-emotional principles in higher education. Her current research is centered on the challenges and supportive factors that BIPOC college students have encountered in the current sociopolitical climate. In addition to her research endeavors, Anabella has served as a mental health intern for Pomona Unified School District, administering mental health support to culturally and linguistically diverse K-12 students. Anabella will be attending New Mexico State University in pursuit of a Ph.D. in counseling psychology, starting in Fall 2026. She hopes to develop as a scientist-practitioner in her doctoral training, with the aim of uplifting the stories, triumphs, and struggles of BIPOC communities.

Abstracts and Biographies

Faith Rosas

Mentor: Dr. Jamie Snyder

Project Title: Determining the cellular proteins involved in assembly of Sulfolobus turreted icosahedral virus

Abstract:

The focus of this study is to investigate the proteins involved in the STIV replication cycle, and further understand the mechanisms this virus utilizes during infection. The Sulfolobus turreted icosahedral virus (STIV) has emerged as a model system for examining archaeal viruses. STIV was originally isolated from an acidic (pH 2) hot (82°C) spring within Yellowstone National Park, USA (YNP). STIV has a 17.6 kb double-stranded DNA genome and replicates in the hyperthermophile host Sulfolobus solfataricus. Currently, we have only a rudimentary understanding of the cellular components required for assembly of STIV. Transcriptomic analysis of STIV-infected *S. solfataricus* revealed that one of the most up-regulated gene clusters during a STIV infection was an ESCRT (Endosomal Sorting Complex Required for Transport) gene cluster. Many eukaryotic enveloped viruses (for example, HIV) hijack the cellular ESCRT system for assembly and for trafficking viral components to the cellular membrane to complete their replication cycle. These observations led us to examine the functional relevance of this apparent interplay between STIV and the host ESCRT machinery. Previous experiments have shown that the STIV major coat protein (MCP) interacts with an ESCRT-III homolog in the Sulfolobus genome. My project will include creating mutations within the C-terminal tail of B345, which is where we believe the interaction with the ESCRT-III homolog is occurring. Genetic tools have been developed for both virus and host to introduce new genes, knock out or modify existing genes and for the expression of heterologous proteins from plasmid vectors. These mutant constructs will be tested in context of virus replication, MCP alone (in the absence of other viral proteins) in *S. solfataricus* cultures, and in co-immunoprecipitation assays. If STIV assembly utilizes ESCRT proteins, we should alter assembly when this interaction is disrupted

Biography:

Faith Rosas is a fourth year undergraduate at California State Polytechnic University, Pomona, double majoring in Biotechnology and Psychology. She previously attended Citrus College where she received an AAT in Psychology. She competed nationally in equestrian vaulting (gymnastics and dance on horses) for 10 years before recently retiring. She is now an equestrian vaulting coach and coaches athletes from ages 4 to 18. She previously worked as a tutor at Citrus College for two years and volunteered as a suicide hotline crisis counselor with the Trevor Project. She is currently in a molecular biology lab studying viruses at CPP, and her research project is focused on proteins involved in the STIV replication cycle. After graduating from CPP, she plans to pursue her PhD in molecular neuroscience. Her long-term goal after receiving her PhD is to conduct research in molecular neuroscience in hopes of developing effective treatments for psychiatric disorders.

Abstracts and Biographies

Andrew Ruiz

Mentor: Dr. Tatiana Basanez

Project Title: The Role of Religiosity and Gender Identity Integration on Social Efficacy and Wellness among Sexual and Gender minorities

Abstract:

In today's sociopolitical context, Sexual and Gender Minorities (SGM) may feel unable to safely express their social identity. Perceived lack of safety could potentially impair SGM's ability to engage in new environments and social networking. In contrast, SGMs with integrated identities may have more social efficacy. However, the role of religiosity in gender identity integration remains unclear. By logic, interpreting one's non-conforming gender as "sinful" might challenge people's social efficacy and wellbeing. Although Sullivan-Blum (2004) suggests that LGBTQ+ individuals may feel spiritually aligned with a "duality of God" (i.e., Christian Holy Trinity Concept; father, son, spirit), Harris et al (2008) and Jones et al (2022) describe how certain religious beliefs encourage negative attitudes towards LGBTQ+ individuals. Using a quantitative survey, this study assessed the role of religiosity on social efficacy and wellbeing outcomes of SGM individuals. Participants were recruited from LGBTQ+ community organizations. Preliminary results indicated that most of the sample scored high in gender identity integration, and that religiosity was not a significant predictor of social efficacy. Gender identity, social efficacy, and wellbeing were all significantly positively correlated. A hierarchical linear regression analysis found that gender identity and social efficacy significantly accounted for 41% of the total variance in wellbeing. Results suggest the need for future qualitative research that can further explore how religious individuals manage to reconcile their beliefs and their gender identity minority status. Future research should recruit participants with less gender identity integration by recruiting from religious organizations rather than from LGBTQ+ clubs. To develop successful therapeutic interventions, it is critical to understand how SGM individuals experience religiosity. Discussion includes speculations about the possible reasons why religiosity may not be directly related to identity integration or wellbeing in this sample.

Biography:

Andrew Ruiz is a Ronald E. McNair Post-Baccalaureate Scholar, an Engage Scholar (Engaging Hispanic Students Through Undergraduate Research), and a senior at California State Polytechnic University, Pomona. Upon graduation, Andrew will attend Western Michigan University to pursue a PhD in Counseling Psychology, building on his diverse background in both professional administration and psychological research. He has held positions as a Human Resource Field Administrator at Ensign Services, Inc., and an Activities Assistant at Upland Rehabilitation & Care Center, where he specialized in patient assessments. Academically, Andrew is a research assistant in a Social and Political Psychology lab and has served as a Teaching Assistant for a university-level Health Psychology course. He co-authored the manuscript "Understanding Differences in Science Appreciation Using the World of Three Cultures Model." He has presented his original research titled, "The Role of Religiosity and Gender Identity Integration on Social Efficacy and Wellness among Sexual and Gender Minorities," at the Southern California Conference for Undergraduate Research (SCCUR) and at the Cal Poly Pomona for Research, Scholarship, and Creative Activities (RSCA) conference.

Abstracts and Biographies

Nicole Sarabia

Mentor: Dr. Claudia Garcia-Des Lauriers

Project Title: Identity Preservation During the Spanish Inquisition: Understanding the Adaptation of Artifacts to Conceal Ritual Items and Practices

Abstract:

Jewish diaspora studies and placemaking through material culture are important aspects of identity preservation, especially during times of persecution. During the Spanish Inquisition, Jews and Muslims were persecuted for their beliefs and ritual practices. While some were able to flee to other countries, others were not so fortunate. Sephardic Jews fled to Mexico, which allowed them to practice their rituals and religious ceremonies in hiding, creating the term "Crypto Jews". This project will discuss the patterns, locations, and indicators of which areas to excavate, and identify how material culture can contribute to placemaking and the preservation of identity through "artifact adaptation" and concealment.

Biography:

Nicole Sarabia is a fourth-year undergraduate at California State Polytechnic University, Pomona, who is studying Anthropology and Geographic Information Systems. She is currently a Teaching Assistant in the Department of Anthropology and is very involved in campus clubs. She is a part of five clubs and serves on the executive board for all of them. Her current research delves into identity preservation during the Spanish Inquisition, and future avenues of research consist of conducting an excavation in Oaxaca, Mexico. She plans to pursue her Ph.D. in Archaeology, where she can gain the tools needed to make a difference academically and socially in the community through professionalism, research, and service. Her short-term goals are to work at a Cultural Resource Management company in Arizona to gain experience in the excavation process.

Abstracts and Biographies

Alexis Yrigoyen

Mentor: Dr. Philippe Duhart

Project Title: Basque American Identity and Belonging Through Everyday Practice

Abstract:

Basque Americans have maintained a distinct cultural presence in the United States for over a century, yet the everyday processes through which Basque identity is experienced, negotiated, and sustained across generations remain understudied. While existing scholarship examines migration histories and institutional preservation, fewer studies explore how identity takes shape through everyday practice. This study investigates how Basque Americans experience cultural belonging through family traditions, community institutions, and participation in cultural practices, with attention to how these practices shape belonging and intergenerational transmission. I use a mixed-methods approach that combines ethnographic observation, preliminary survey data, and informal interviews to examine how Basque identity is expressed and maintained within the American diaspora. This approach allows me to examine lived cultural practices alongside broader patterns of participation. I conducted ethnographic observations at Basque community events and organizational spaces, including cultural ceremonies, the preparation of traditional food, and club board meetings. These observations suggest that everyday practices function as key sites where belonging is expressed and recognized. Within these settings, cultural knowledge circulates through interaction, and participation shapes expectations around identity over time. In addition, I distributed an anonymous online survey to 20 Basque American participants nationwide. Preliminary findings indicate a strong emotional attachment to Basque heritage, with all respondents reporting a strong sense of identity and emphasizing the importance of maintaining traditions. Furthermore, 75% reported active involvement in Basque organizations, and 95% agreed that club events foster a collective Basque American identity. At the same time, participants expressed concern about generational continuity, particularly declining engagement among younger generations. These preliminary findings indicate that Basque American identity is sustained through participation in shared practices and community spaces, where belonging develops through repeated engagement. Focusing on everyday practices highlights how identity is maintained and reshaped across generations and draws attention to the challenges of sustaining long-term participation. By centering ordinary settings and lived experiences, this study contributes to diaspora discussions by showing how cultural belonging is produced and negotiated over time. Ongoing research will include semi-structured interviews and additional fieldwork to further examine how Basque identity continues to evolve within diaspora communities.

Biography:

Alexis Yrigoyen is an anthropology researcher and McNair Scholar at California State Polytechnic University, Pomona. Her research examines identity, memory, and belonging through community-engaged and interdisciplinary approaches, focusing on how cultural practices and landscapes shape lived experiences. She is currently conducting ethnographic research on Basque American identity, investigating how traditions, institutions, and everyday practices sustain intergenerational belonging. Her broader work explores sites of cultural memory, including Ethiopian restaurants in Los Angeles and Orange County, where food and space function as everyday forms of cultural preservation and exchange. She also contributes to geophysical research at Agua Mansa Pioneer Cemetery, using ground-penetrating radar and related methods to identify marked and unmarked graves and examine how historical landscapes reflect layered narratives of community and memory. She plans to pursue a Ph.D. in anthropology, focusing on cultural heritage and community-based research.