S3

FEBRUARY 27, 2026

19TH ANNUAL SDSU STUDENT SYMPOSIUM

19th Annual SDSU Student Symposium

February 27, 2026

A showcase of discovery, innovation and creativity

SDSU | San Diego State University

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We would like to thank our sponsors

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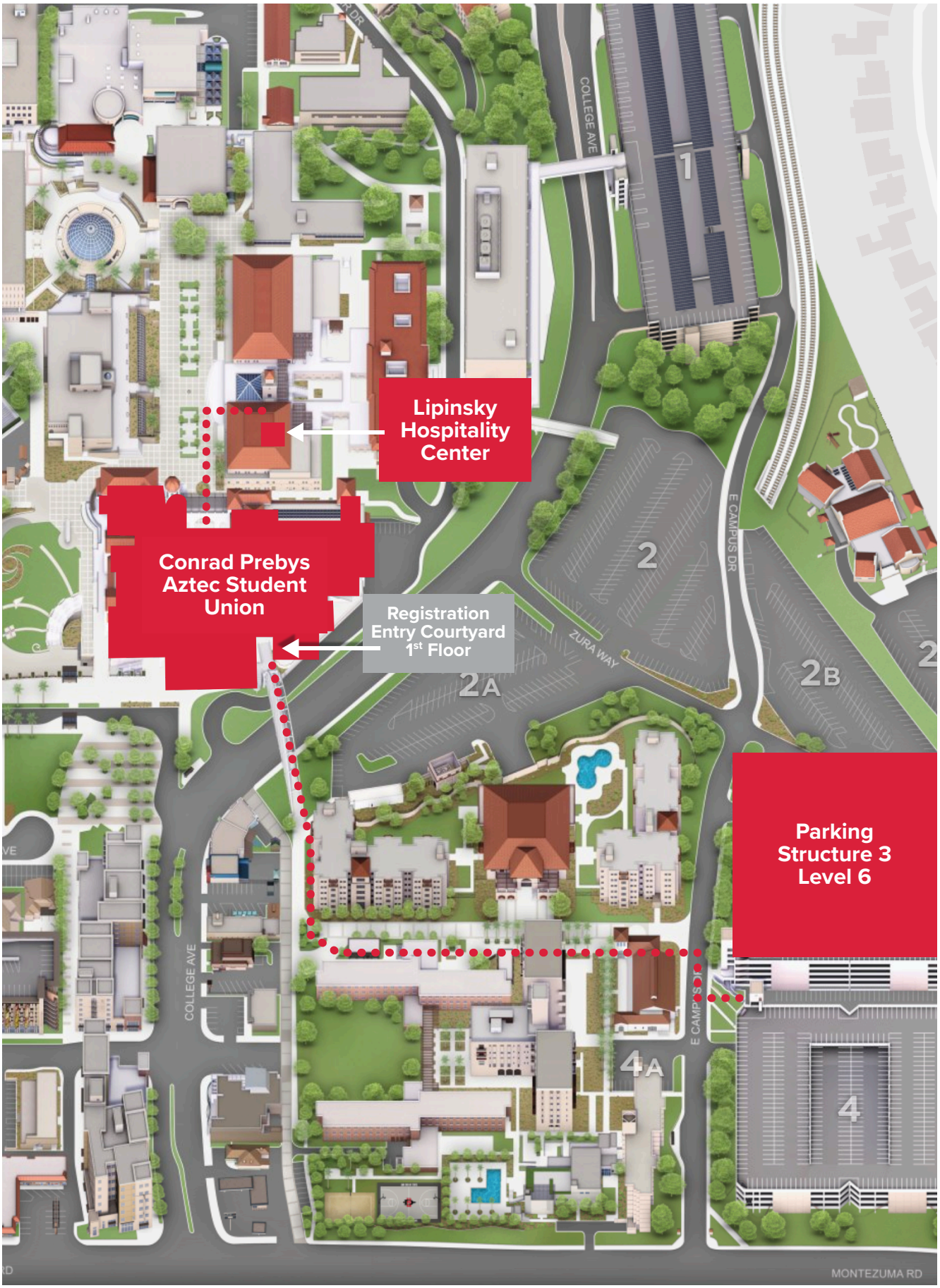
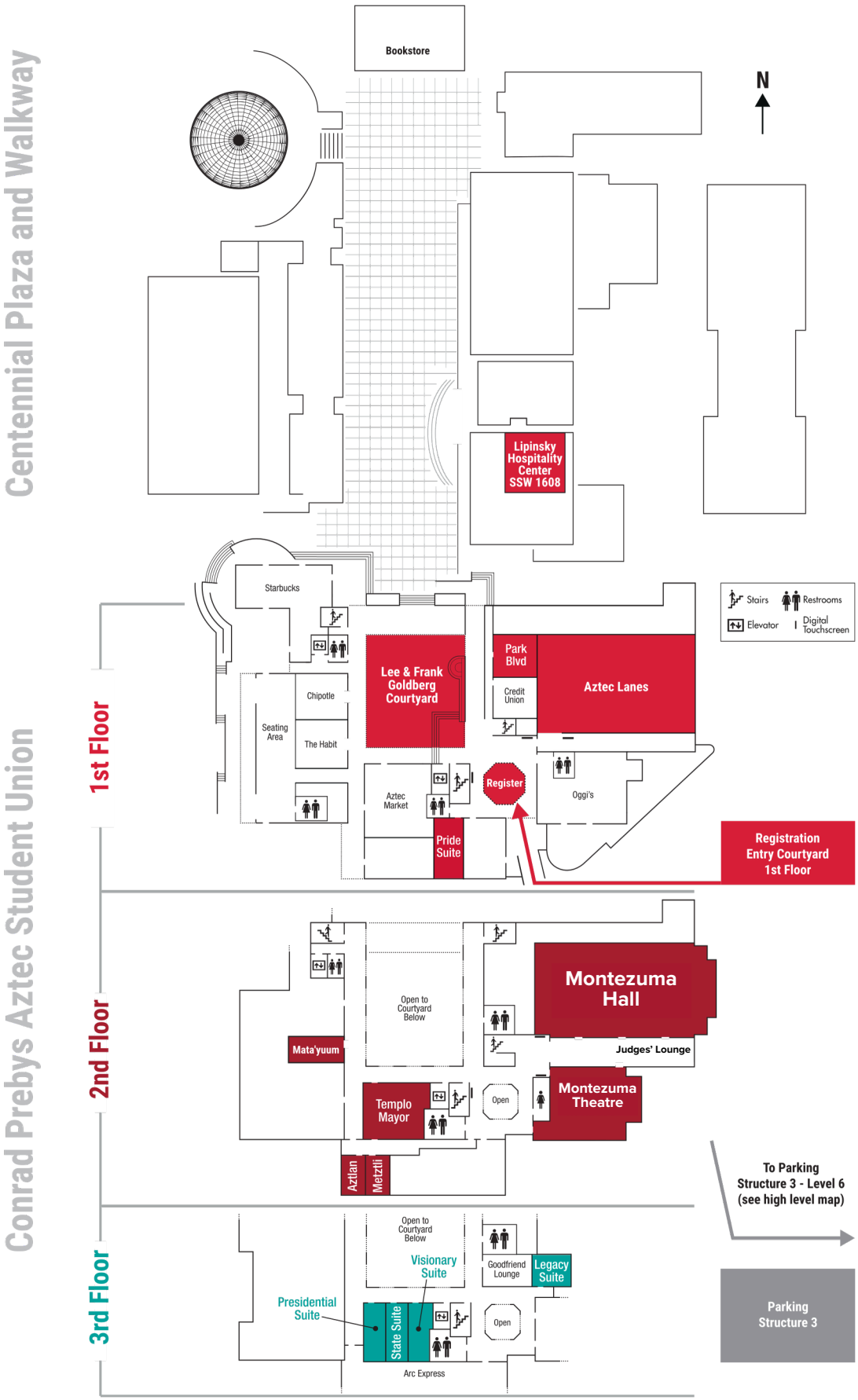
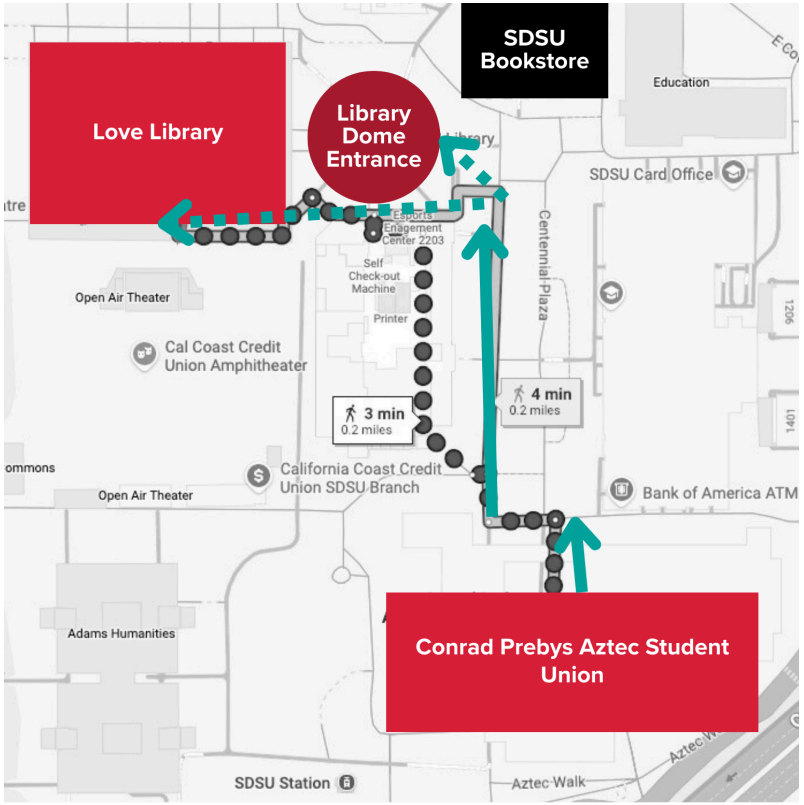
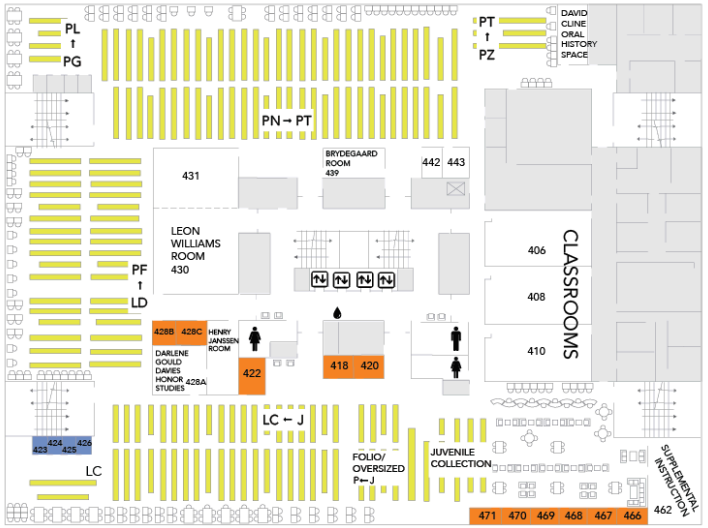
SAN DIEGO STATE UNIVERSITY CAMPUS MAP



DETAILED EVENT LOCATION MAP







Love Library (LL) 4th Floor

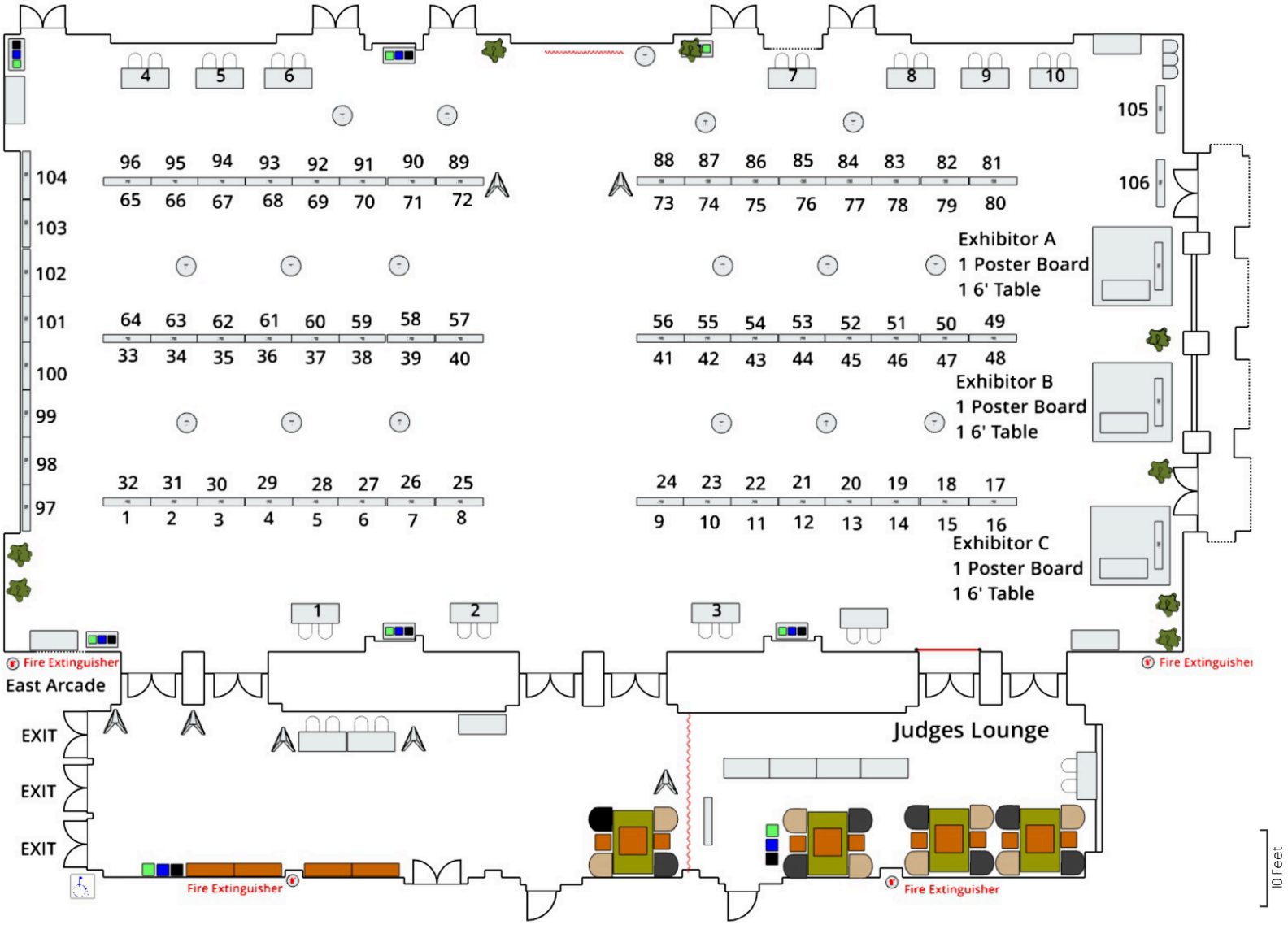
Legend

- Charging Station
- Elevator
- Hydration Station
- Printer
- Restrooms
- Scanner
- Self Checkout Machine
- Computers
- Group Study Room
- Quiet Study
- Single Use Room
- Service Desk
- Stacks

SDSU | University Library

The Love Library 4th Floor is accessible via elevator and stairs in the Love Library. The Juvenile Collection is located here. The Leon Williams Room is in LL430, Classrooms are in LL406, LL408, and LL410, Single Use Rooms are in LL 423, 424, 425,426, as well as, Supplemental Instruction is in LL462.

LOVE LIBRARY MAP



POSTER AND EXHIBITOR LAYOUT

Friday, February 27, 2026

8:00 a.m. - 3:00 p.m.	Check-In	Entry Courtyard
8:30 a.m. - 8:45 a.m.	Opening Remarks	Theatre
9:00 a.m. - 11:00 a.m.	Session Block 1	Student Union/Library
11:00 a.m. - 1:00 p.m.	Session Block 2	Student Union/Library
11:30 a.m. - 1:30 p.m.	Judge Lunch	Montezuma Lounge
1:00 p.m. - 3:00 p.m.	Session Block 3	Student Union/Library
3:00 p.m. - 5:00 p.m.	Session Block 4	Student Union/Library

Sample Session Schedule - Oral Presentations

Moderator Instructions	Presenter 1	Presenter 2	Presenter 3	Presenter 4	Presenter 5	Closing
9:00 a.m.	**9:15 a.m.** Setup	**9:35 a.m.** Setup	**9:55 a.m.** Setup	**10:15 a.m.** Setup	**10:35 a.m.** Setup	**10:55 a.m.**
Welcome, Judge Roll Call, Overview	**9:20 a.m.** Presentation	**9:40 a.m.** Presentation	**10:00 a.m.** Presentation	**10:20 a.m.** Presentation	**10:40 a.m.** Presentation	
	9:30 a.m. Q/A	**9:50 a.m.** Q/A	**10:10 a.m.** Q/A	**10:30 a.m.** Q/A	**10:45 a.m.** Q/A	

Sample Session Schedule - Poster/Exhibit Presentations

9:00 - 9:15 a.m. 15 minutes	• Presenters setup posters/exhibits and get into position • Poster Monitors check that posters/exhibits are in the correct locations
9:15 - 10:50 a.m. 1hr 35 mins	• Presenters discuss their poster or exhibit and answer questions • Judges allocate 10-12 mins max per student to ensure enough time to judge all students
10:50 - 11:00 a.m. 10 minutes	• Presenters clear the space in preparation for the next session • Judges can use this time to finish up evaluations

Sample Session Schedule - Theatre Presentations

Moderator Instructions	Presenter 1	Presenter 2	Presenter 3	Presenter 4	Closing
9:00 a.m.	**9:10 a.m.** Setup	**9:35 a.m.** Setup	**10:00 a.m.** Setup	**10:25 a.m.** Setup	**10:50 a.m.**
Welcome, Judge Roll Call, Overview	**9:15 a.m.** Presentation	**9:40 a.m.** Presentation	**10:05 a.m.** Presentation	**10:30 a.m.** Presentation	
	9:30 a.m. Q/A	**9:55 a.m.** Q/A	**10:20 a.m.** Q/A	**10:45 a.m.** Q/A	

Friday, February 27, 2026 - 9:00 a.m. Session Block 1

Time	Session Number	Session Type	Session Title	Presentation Location
9:00 a.m.	A - 1	Oral	Behavioral and Social Sciences (G) 1	Legacy Suite
	A - 2	Oral	Biological and Agricultural Sciences (U) 1	State Suite
	A - 3	Oral	Business, Economics & Public Administration (U) 1	Lipinsky SSW 1608
	A - 4	Oral	Education (U) 1	Park Boulevard
	A - 5	Oral	Engineering and Computer Science (U) 1	Pride Suite
	A - 6	Oral	Health Nutrition and Clinical Sciences (U) 1	Metztli
	A - 7	Oral	Humanities, History, Literature, & Philosophy (U) 1	Aztlan
	A -8	Oral	Physical and Mathematical Sciences (U) 1	Mata'yuum
	A - 9	Oral	Visual and Creative Arts (U/G) 1	Visionary Suite
	A - 10	Oral	Behavioral and Social Sciences (U) 1	Presidential Suite
	A - 11	Oral	Behavioral and Social Sciences (U) 2	Leon Williams Room, LL 430
	E - 1	Oral	Special Session: Cancer Research Convergence (U/G) 1	Templo Mayor
	F - 1	Poster	Biological and Agricultural Sciences (U) 1	Montezuma Hall 1-8
	F - 2	Poster	Biological and Agricultural Sciences (U) 2	Montezuma Hall 9-16
	F - 3	Poster	Engineering and Computer Science (U) 1	Montezuma Hall 17-24
	F - 4	Poster	Behavioral and Social Sciences (U) 1	Montezuma Hall 25-32
	F - 5	Poster	Behavioral and Social Sciences (U) 2	Montezuma Hall 33-40
	F - 6	Poster	Engineering and Computer Science (U/G) 2	Montezuma Hall 41-48
	F - 7	Poster	Behavioral and Social Sciences (G) 1	Montezuma Hall 49-56
	F - 8	Poster	Behavioral and Social Sciences (U) 3	Montezuma Hall 57-64
	F - 9	Poster	Behavioral and Social Sciences (G) 2	Montezuma Hall 65-72
	F - 10	Poster	Behavioral and Social Sciences (G) 3	Montezuma Hall 73-80
	F - 11	Poster	Education (U) 1	Montezuma Hall 81-88
	F - 12	Poster	Health Nutrition and Clinical Sciences (U/G) 1	Montezuma Hall 89-96
	F - 13	Poster	Education (U/G) 1	Montezuma Hall 97-104
	K - 1	Exhibit	Visual and Creative Arts Exhibit (U/G) 1	Montezuma Hall
	L - 1	Theatre	Theatre Presentation - Film/Trailer Screening	Union Theatre

Friday, February 27, 2026 - 11:00 a.m. Session Block 2

Time	Session Number	Session Type	Session Title	Presentation Location
11:00 a.m.	B - 1	Oral	Behavioral and Social Sciences (G) 2	Legacy Suite
	B - 2	Oral	Biological and Agricultural Sciences (G) 1	State Suite
	B - 3	Oral	Business, Economics & Public Administration (U/G) 1	Lipinsky SSW 1608
	B - 4	Oral	Education (G) 1	Park Boulevard
	B - 5	Oral	Engineering and Computer Science (G) 1	Pride Suite
	B - 6	Oral	Health Nutrition and Clinical Sciences (G) 1	Metztli
	B - 7	Oral	Humanities, History, Literature, & Philosophy (G) 1	Aztlan
	B - 8	Oral	Physical and Mathematical Sciences (G) 1	Mata'yuum
	B - 9	Oral	Behavioral and Social Sciences (U) 3	Visionary Suite
	B - 10	Oral	Behavioral and Social Sciences (G) 3	Presidential Suite
	B - 11	Oral	Media in Changing World (U/G) 1	Leon Williams Room, LL 430
	E - 2	Oral	Special Session: Cancer Research Convergence (G) 1	Templo Mayor
	G - 1	Poster	Health Nutrition and Clinical Sciences (U) 1	Montezuma Hall 1-8
	G - 2	Poster	Humanities, History, Literature, & Philosophy (U/G) 1	Montezuma Hall 9-16
	G - 3	Poster	Special Session: Media in a Changing World (G)	Montezuma Hall 17-24
	G - 4	Poster	Biological and Agricultural Sciences (G) 1	Montezuma Hall 25-32
	G - 5	Poster	Biological and Agricultural Sciences (G) 2	Montezuma Hall 33-40
	G - 6	Poster	Special Session: Media in a Changing World (U)	Montezuma Hall 41-48
	G - 7	Poster	Behavioral and Social Sciences (G) 4	Montezuma Hall 49-56
	G - 8	Poster	Special Session: AI & Robotics in Autonomy (G) 1	Montezuma Hall 57-64
	G - 9	Poster	Special Session: AI & Robotics in Autonomy (U/G) 1	Montezuma Hall 65-72
	G - 10	Poster	Behavioral and Social Sciences (U) 4	Montezuma Hall 73-80
	G - 11	Poster	Physical and Mathematical Sciences (G) 1	Montezuma Hall 81-88
	G - 12	Poster	Physical and Mathematical Sciences (U/G) 1	Montezuma Hall 89-96
	G - 13	Poster	Special Session: Sage Project Partnerships (U/G) 1	Montezuma Hall 97-104
	K - 2	Exhibit	Humanities, History, Literature, & Philosophy Exhibit (U/G) 1	Montezuma Hall
	L - 2	Theatre	Theatre Presentation - Performance (Music/Dance)	Union Theatre

Friday, February 27, 2026 - 1:00 p.m. Session Block 3

Time	Session Number	Session Type	Session Title	Presentation Location
1:00 p.m.	C - 1	Oral	Behavioral and Social Sciences (G) 4	Legacy Suite
	C - 2	Oral	Biological and Agricultural Sciences (G) 2	State Suite
	C - 3	Oral	Behavioral and Social Sciences (G) 5	Lipinsky SSW 1608
	C - 4	Oral	Education (U/G) 1	Park Boulevard
	C - 5	Oral	Engineering and Computer Science (G) 2	Pride Suite
	C - 6	Oral	Health Nutrition and Clinical Sciences (U/G) 1	Metztli
	C - 7	Oral	Humanities, History, Literature, & Philosophy (G) 2	Aztlan
	C -8	Oral	Physical and Mathematical Sciences (G) 2	Mata'yuum
	C - 9	Oral	Behavioral and Social Sciences (G) 6	Visionary Suite
	C- 10	Oral	Behavioral and Social Sciences (U) 4	Presidential Suite
	C - 11	Oral	Behavioral and Social Sciences (G) 7	Leon Williams Room, LL 430
	E - 3	Oral	Special Session: Media in a Changing World (G)1	Templo Mayor
	H - 1	Poster	Health Nutrition and Clinical Sciences (U) 2	Montezuma Hall 1-8
	H - 2	Poster	Health Nutrition and Clinical Sciences (U) 3	Montezuma Hall 9-16
	H - 3	Poster	Special Session: Cancer Research Convergence (U) 1	Montezuma Hall 17-24
	H - 4	Poster	Behavioral and Social Sciences (U) 5	Montezuma Hall 25-32
	H - 5	Poster	Behavioral and Social Sciences (U) 6	Montezuma Hall 33-40
	H - 6	Poster	Special Session: Cancer Research Convergence (U/G) 1	Montezuma Hall 41-48
	H - 7	Poster	Biological and Agricultural Sciences (U) 3	Montezuma Hall 49-56
	H - 8	Poster	Biological and Agricultural Sciences (G) 3	Montezuma Hall 57-64
	H - 9	Poster	Behavioral and Social Sciences (G) 5	Montezuma Hall 65-72
	H - 10	Poster	Biological and Agricultural Sciences (U) 4	Montezuma Hall 73-80
	H - 11	Poster	Physical and Mathematical Sciences (U) 1	Montezuma Hall 81-88
	H - 12	Poster	Physical and Mathematical Sciences (U) 2	Montezuma Hall 89-96
	H - 13	Poster	Biological and Agricultural Sciences (U/G) 1	Montezuma Hall 97-104
	K - 3	Exhibit	Visual and Creative Arts Exhibit (U) 1	Montezuma Hall
	L - 3	Theatre	Theatre Presentation - Table Reading	Union Theatre

Friday, February 27, 2026 - 3:00 p.m. Session Block 4

Time	Session Number	Session Type	Session Title	Presentation Location
3:00 p.m.	D - 1	Oral	Behavioral and Social Sciences (G) 8	Legacy Suite
	D - 2	Oral	Biological and Agricultural Sciences (G) 3	State Suite
	D - 3	Oral	Physical and Mathematical Sciences (G) 3	Lipinsky SSW 1608
	D - 4	Oral	Humanities, History, Literature, & Philosophy (G) 3	Park Boulevard
	D - 5	Oral	Engineering and Computer Science (G) 3	Pride Suite
	D - 6	Oral	Special Session: APIDA Research and Servingness / Special Session: Sage Partnerships	Metztli
	D - 7	Oral	Humanities, History, Literature & Philosophy (U/G) 1	Aztlan
	D -8	Oral	Physical and Mathematical Sciences (U) 2	Mata'yuum
	D - 9	Oral	Behavioral and Social Sciences (U) 5	Visionary Suite
	D - 10	Oral	Physical and Mathematical Sciences (U/G) 1	Presidential Suite
	D - 11	Oral	Behavioral and Social Sciences (G) 9	Leon Williams Room, LL 430
	E - 4	Oral	Special Session: Media in a Changing World (U) 1	Templo Mayor
	I - 1	Poster	Behavioral and Social Sciences (U) &	Montezuma Hall 1-8
	I - 2	Poster	Business, Economics & Public Administration (U/G) 1	Montezuma Hall 9-16
	I - 3	Poster	Engineering and Computer Science (G) 1	Montezuma Hall 17-24
	I - 4	Poster	Engineering and Computer Science (U) 3	Montezuma Hall 25-32
	I - 5	Poster	Engineering and Computer Science (G) 2	Montezuma Hall 33-40
	I - 6	Poster	Engineering and Computer Science (G) 3	Montezuma Hall 41-48
	I - 7	Poster	SDSU VISTA Poster Presentation Bravo	Montezuma Hall 49-56
	I - 8	Poster	Health Nutrition and Clinical Sciences (G) 1	Montezuma Hall 57-64
	I - 9	Poster	Health Nutrition and Clinical Sciences (G) 2	Montezuma Hall 65-72
	I - 10	Poster	SDSU VISTA Poster Presentation Delta	Montezuma Hall 73-80
	I - 11	Poster	Biological and Agricultural Sciences (U/G) 2	Montezuma Hall 81-88
	I - 12	Poster	Health Nutrition and Clinical Sciences (U/G) 2	Montezuma Hall 89-96
	I - 13	Poster	Behavioral and Social Sciences (U/G) 1	Montezuma Hall 97-104
	K - 4	Exhibit	APIDA Research and Servingness Exhibit (U) 1	Montezuma Hall
	L - 4	Theatre	Theatre Presentation - Film/Table Reading/Performance	Union Theatre

Adela de la Torre, Ph.D.

President
San Diego State University

Dear colleagues and guests,

On behalf of San Diego State University, I am pleased to welcome you to the 19th annual SDSU Student Symposium (S3). This signature event celebrates the curiosity, creativity and academic excellence of our students, and it reflects the strength of SDSU as a student-centered, public research university. As a newly designated R1 institution, we are expanding opportunities for students to engage in high-impact research that benefits our region and the world beyond.

S3 spotlights the remarkable work of our undergraduate and graduate students. This year marks our largest symposium ever, with approximately 650 presentations and more than 750 students participating across all colleges and disciplines. Together, they represent the extraordinary breadth of inquiry and innovation taking place at SDSU—from physical, applied and social sciences to the humanities, arts and professional fields.

Our growth as an R1 university reflects both the strength of our research enterprise and our deep commitment to student success and access. At SDSU, research is not only about discovery—it is a powerful pathway to career readiness and community impact. Through mentored, hands-on experiences, students develop essential skills such as critical thinking, collaboration, communication and leadership while preparing for meaningful careers, graduate study and service to society. The work showcased at S3 demonstrates how student scholarship addresses real-world challenges and advances the greater good.

I am deeply grateful to the faculty and staff whose mentorship makes these achievements possible, and to the hundreds of volunteers and judges who have devoted their time and expertise to this event. To our guests from SDSU and the broader community, thank you for joining us to celebrate our students and the promising future they are helping to shape.

Adela de la Torre, Ph.D.
San Diego State University President

Hala Madanat, Ph.D.

Vice President for Research and Innovation
San Diego State University

Thank you for attending the 2026 San Diego State University Student Symposium (S3)! S3 is one of my favorite events of the academic year because it is truly a celebration of our entire research enterprise as well as the university's teaching mission.

Our undergraduate, master's and doctoral students get the chance to shine, presenting scholarly and creative projects they've developed over the past year. They observe the natural world during fieldwork, analyze archival materials, learn bench science, create emotionally moving art, synthesize literature with lived experiences, and much more. Discussing both the processes and products of these experiences with their peers, university staff, and our larger San Diego community enhances students' public speaking skills and allows for enthusiastic and inspiring exchanges of ideas.

Students: You are an integral and valued piece of SDSU's R1-level research enterprise. You elevate our curiosity and commitment to equity and make us a stronger, more impactful institution. I hope you are proud of your preparation and presentation at S3 today and that this opportunity is a step forward on your path toward career success and personal fulfillment!

To the faculty, staff, mentors, families and friends who support our presenters: thank you for shaping these students into scholars whose findings will undoubtedly heal communities, protect ecosystems, revolutionize industries and solve society's most pressing challenges.

To our sponsors and community partners: your engagement and financial support shows our students that their passions and projects matter. Thank you for recognizing the importance of research, scholarship and creative activities for professional development and the region's success.

And to the hard-working, creative staff in our Division of Research and Innovation: thank you for the time and energy you devoted to organizing this phenomenal event. Our students would not be able to shine as brightly without you.

Hala Madanat, Ph.D.
Vice President for Research and Innovation
San Diego State University

Chris Manning, Ph.D.

Vice President for Student Affairs and Campus Diversity
San Diego State University

Welcome to the 2026 San Diego State University Student Symposium (S3).

The 2026 S3 features approximately 650 presentations and over 750 student presenters across undergraduate, master's and doctoral programs, making it the largest ever SDSU Student Symposium. This event showcases the curiosity, innovation and dedication of SDSU students as they explore new ideas and address real-world challenges.

Research and creative activities are an integral part of the SDSU student experience. They help students develop critical thinking, collaboration and communication skills while deepening their understanding of their fields. As an R1 research institution, SDSU provides expanded opportunities for students to engage in high-impact discovery, work alongside leading researchers and contribute to cutting-edge solutions, elevating the value of an SDSU degree and the impact of our student's' work. Whether you are presenting your work or supporting your peers, you are contributing to a community committed to discovery and impact.

I am excited to celebrate the outstanding research, scholarship and creative work happening across our campus. I hope this event inspires new ideas, connections and opportunities for growth.

Chris Manning, Ph.D.
Vice President for Student Affairs and Campus Diversity
San Diego State University

Kendall Robinson

Recent graduate of SDSU School of Art and Design
Designed the S³ 2026 artwork
San Diego State University

Kendall Robinson is a Fall 2024 graduate from the School of Art and Design at San Diego State University. Raised in San Diego, California, she found her passion for Graphic Design during her academic journey at San Diego State University. She enjoys Graphic Design because it offers functionality and creativity to an intentional practice. Kendall believes in designing with intention and purpose to create flawless, unique results with a lasting impact. Areas of design she enjoys include packaging, UI/UX, and any design that utilizes Typography. When Kendall is not designing, she loves spending time at the beach with her dog and watching baseball.

This design system was selected by the S³ committee from a set of 16 other students in the Design Studio course taught by Professor Gary Benzel. With the S³ committee's goals in mind, Kendall wanted this design to influence student participation and attendance by representing all majors and disciplines that are encouraged to participate. The image displays three hands all showcasing a different action from each major, created with a composition of the hands in the middle creating an implied circle. To resonate with more creative majors the image utilizes a paper-textured background with different torn paper textures to create a collage look. The bold SDSU colors of red and teal are organically used to promote an affiliation to the school. Each shape and texture uses a multiplier effect to create a three-dimensional, eye catching image to engage the viewer. Three poster variations were created, each using different words to represent what S³ event stands for: "Ideas, Skills, and Craft".

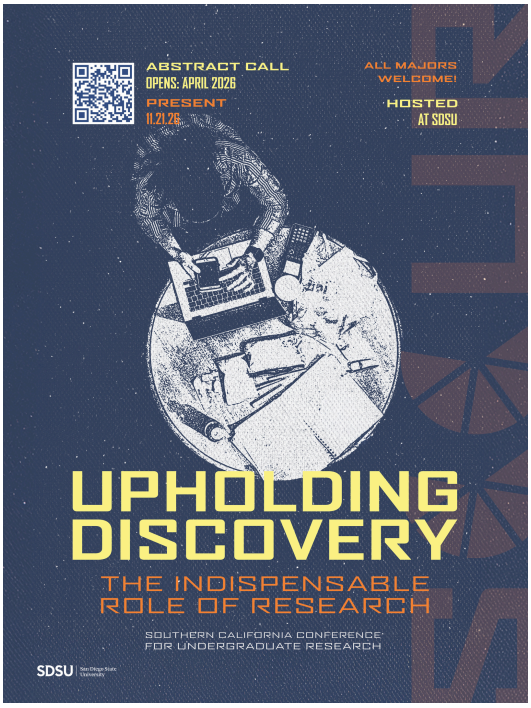
Delilah Flores

Recent graduate of SDSU School of Art and Design
Designed the SCCUR 2026 artwork
San Diego State University

Delilah Flores (‘25) recently earned her bachelor’s degree in graphic design from SDSU. Her creative practice is rooted in research, visual storytelling, and thoughtful design processes that bridge concept and community. Working across both print and digital media, she creates designs that are intentional, narrative-driven, and informed by context.

In addition to graphic design, Delilah is an illustrator whose work often complements her design practice through expressive and experimental visuals. She is particularly interested in how design can function as a tool for communication, documentation, and engagement beyond aesthetics. Through ongoing community-based projects, she explores ways design can foster connection, highlight shared experiences, and support meaningful interaction between people and place.

For this year’s Southern California Conferences for Undergraduate Research (SCCUR), the graphic design concept centers on celebrating the diversity of disciplines and stories behind student research. The visual direction uses SCCUR’s signature dark blue and orange in a modern duotone style to unify the wide range of studies represented. The core poster series visually connects students across different fields through circular compositions. This subtle symbol of focus and discovery connects these fields of research. Together, the posters, booklet, and social media assets form a cohesive visual system that highlights curiosity, collaboration, and the innovative spirit that defines SCCUR.

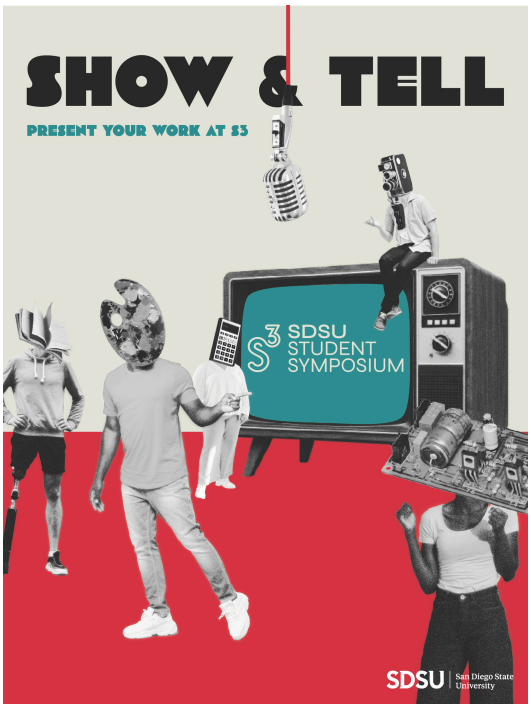


Peyton Enderle

SDSU Graphic Design student
Designed the S³ 2027 artwork
San Diego State University

Peyton Enderle is a user interface/experience designer who has developed her strong visual communication skills through graphic design, painting, and drawing. She is originally from the Main Line of Philadelphia and is a class of 2026 graphic design student at San Diego State University. Her passion for design is driven by her love for finding creative solutions that are meaningful to how a design both looks and functions. View more of Peyton's work at https://peytonenderle.com.

After several rounds of voting by the S³ committee, Peyton's design was selected from a set of 11 designs, all created by students in Professor Gary Benzel's Design Studio Course. Inspired by surrealist collages, Peyton's design showcases the diverse collection of students and their disciplines which shape S³. The title, "Show and Tell," is reminiscent of the grade school activity where children select an object and share its importance to them with their class. By using a familiar, similar concept, the title helps illustrate what S³ is to those unfamiliar with the event. The five individuals in the design are each depicted with an object that represents their discipline in place of their head and are shown interacting with one another. This emphasizes how a student's work is a part of their identity and how S³ is an event where they are able to share and celebrate that part of themself with others. Peyton's design captures the essence of S³ and emphasizes the event's inclusive environment where students can celebrate their accomplishments with their community.



Awards

Awards will be presented at the closing award ceremony on Saturday, March 7, 2026 at 9:00 am in Parma Payne Goodall Alumni Center, to recognize the most outstanding presentations in research, scholarship, and creative activities at the SDSU Student Symposium. The awards are as follows:

President's Awards

Nine President's Awards of $500 each, will be given to the most outstanding oral presentations across all disciplines. Those receiving a President's Award will represent SDSU at the California State University (CSU) Student Research Competition on April 25-26, 2025.

President's Award for the Arts

One President's Award for the Arts of $500 will be given to an outstanding presentation in the performance arts or exhibit category. The awardee will represent SDSU at the California State University (CSU) Student Research Competition, which will be held at California State University (CSU) Student Research Competition on April 25-26, 2025.

Charles Wei-Hsun Fu Foundation Philosophy Award

Sponsored by the Charles Wei-hsun Fu Foundation and the San Diego State Department of Philosophy, one award of $500 will be given for students doing excellent research in the field of philosophy and encourages a special niche where philosophy students can shine. This award is open to all students, regardless of their major, who are engaged in philosophical research that are presenting an oral project at S^3.

Research, Scholarship and Creative Activities Mentor Awards

Two Research, Scholarship and Creative Activities Mentor Awards of $500 each, will be given to recognize excellence in student mentoring (1 undergraduate and 1 graduate awards). Awardees are nominated by students when they submit their presentation for the symposium.

Community Engaged Research Award

Sponsored by the Office of Academic Community Engagement at SDSU, this award goes to students presenting excellent community engaged research at S^3. Community engaged research is a collaborative research approach where researchers partner with community members, organizations, and other stakeholders throughout the entire research process—from developing research questions to disseminating findings—to co-create knowledge and address community-identified needs. It emphasizes reciprocal partnerships, shared power, and mutual accountability to produce more relevant, trusted, and impactful research that improves health and well-being in those communities. This award is open to all undergraduate students, regardless of their major or degree objectives, or method of presentation (e.g., oral presentation, poster). One award of $500 will be given.

Provost's Awards

Sixteen Provost's Awards of $250 each, will be given for the top two presentations (excluding oral presentations) in each college.

Women in Engineering Awards

The Women-in-Engineering (WIE) award has been presented during the annual SDSU Student Symposium (S^3) event since 2015. This award aims to promote women student engineers/researchers from the College of Engineering at the undergraduate (B.S.) and graduate (M.S./Ph.D.) degree education levels. The first, second and third prize amounts are $250, $200 and $150, respectively and will be awarded to the top three women engineers/researchers from the College of Engineering based on S^3 oral/poster judging criteria. This award is sponsored by Prof. Satish Sharma, Director, Antenna and Microwave Lab (AML), Department of Electrical and Computer Engineering.

Research Awards for Diversity, Inclusion, and Social Justice

Diversity, social justice, and inclusion are values at the core of our university mission. Two awards of $250 each, will be given to the best presentations that exemplify our ongoing commitment to diversity, inclusion, and social justice.

Hispanic Serving Institution Award

Sponsored by the office of Hispanic Serving Institution (HSI) and Regional Affairs Student Research, this award goes to the top student whose research furthers our understanding of serving Latinx, Chicanx, or Hispanic students in higher education or contributes to the commitment to honor SDSU's designation as a Hispanic Serving Institution. Two awards of $250 will be given.

Asian American Native Hawaiian Pacific Islander (AANHPI) Award

Sponsored by the Office of Asian American Native Hawaiian Pacific Islander-Serving Institution (AANHPISI) Affairs, this award goes to the top students whose research and scholarly pursuits furthers and/or advances our understanding of AANHPI communities, histories, and/or heritages. Award-winning projects will contribute to enhancing SDSU's designation as an AANHPISI. Two awards of $250 will be given.

Early Bird Award

The Early Bird Award recognizes exemplary preparedness and timely commitment to the SDSU Student Symposium. Established to honor students who meet the original registration deadline, this award reflects the value of advanced planning and professional readiness in scholarly dissemination. For 2026, one Early Bird Award for $150 will be presented.

Arts Exhibit Award

One Arts Exhibit Award of $250 will be given to the best art exhibit. Art exhibits can showcase a wide range of artistic mediums including Painting, Sculpture, Photography, Digital Art, Mixed Media, Textiles, Ceramics, Glass, Jewelry, and Installations.

Outstanding Creative and Performing Arts Award

Two Outstanding Creative and Performing Arts Awards of $250 will be given for the best performance presentation. Performing arts are artistic disciplines that involve live performances, such as:

- Theatre: Plays, musicals, and other dramatic productions
- Music: Concerts, operas, symphonies, and other musical performances
- Dance: Ballet, modern dance, jazz dance, and other dance forms
- Opera: A dramatic musical work, typically in several acts, combining singing, acting, and orchestral music

SDSU Undergraduate RSCA Program (SURP) Award

Two awards of $250 each will be given for the top presentations by students who have participated in the SURP program.

Research Scholarship and Creative Activities Excellence Awards

Four RSCA of $250 each will be given for two undergraduate and two graduate presentations across all disciplines recognizing scholarly achievement.

Library Awards

Two Library Awards of $250 each will be given for presentations. Awards will go to the best projects using library resources and collections, including, but not limited to printed resources, databases, primary resources, and materials in all media.

School of Journalism and Media Studies Award

Sponsored by the School of Journalism and Media Studies and the Media, Identity, & Communication (MIC) Innovation Research Lab, this student research award goes to the top students whose research furthers our understanding of the ways identity, culture, and communication intersect within society amid political tensions, technological change, and the rise of tools like AI. Two awards of $100 will be given: one for a graduate student and one for an undergraduate student. Poster and oral presentations qualify for these awards.

Dean's Awards

Sixteen Dean's Awards of $200 each will be given for all presentations. Awards will go to the top presentations in each college that are eligible for this award.

SDSU VISTA Student Recognition Award

The SDSU VISTA (Valuing Incarcerated Scholars through Academia) program is a Bachelor of Arts degree initiative designed to empower incarcerated students. SDSU VISTA Poster Presentation Exhibits will showcase student work through poster presentations. These presentations will undergo peer review by SDSU Criminal Justice students enrolled in CJ 431 (Field Study in Local Corrections). The top two presentations, as determined by the peer review process, will receive the SDSU VISTA Student Presentation Awards. Furthermore, the authors of these winning presentations will be eligible for interviews and have their stories featured in SDSU Research communication outlets, providing a valuable platform to share their academic achievements and perspectives.

SDSU Grad Slam Awards

The College of Graduate Studies has partnered with the Division of Research and Innovation to host SDSU Grad Slam, similar to a Three-Minute Thesis competition. This event runs in parallel with S^3 and provides an additional opportunity for SDSU master's and doctoral students to showcase their research, scholarship, or other creative work.

The top two presenters will receive a monetary prize (First Prize $500; Second Prize $250) and will compete in the CSU Grad Slam Competition (virtual) hosted by California State University San Bernardino. Students are eligible to receive prizes from both the SDSU Grad Slam competition as well as other S^3 awards.

What is VISTA?

VISTA, or Valuing Incarcerated Scholars through Academia, is a program that brings a Bachelor of Arts degree to students in Centinela State Prison. SDSU faculty and lecturers teach in-person courses in collaboration with SDSU Global Campus.

VISTA works to further the mission of the Institute for the Arts, Humanities and Social Justice by broadening access to higher education. The VISTA program is now in its third cohort of students, and they held their first graduation ceremony last May. Students in the current cohort are studying journalism, and their degree will culminate in a capstone project. Prison programming, such as education, has been shown to reduce rates of reoffending and increase rates of employment upon release. These effects are especially pertinent since multiple VISTA students have been released since the inception of the program, and some even continue their education journeys on-campus at San Diego State.

VISTA Student Presentations at S^3

This year is the second year that VISTA scholars are presenting their research at the SDSU Student Symposium (S^3). With the support of VISTA faculty and staff, students develop a research project on the topic of their choice to be presented at the symposium.

This year's VISTA students have conducted research on a range of topics important to their studies and to their lives. Common themes include incarceration, the impact of education on recidivism, mental health awareness, and the importance of rehabilitative funding within prison. Though VISTA students cannot be here to tell you about their posters in person, viewers can listen to the accompanying audio recordings of the students briefly discussing their research and findings. VISTA faculty and staff, SDSU criminal justice students, and VISTA alumni will also be present to promote the research done by VISTA students.

After the symposium, VISTA student projects will be available for viewing in the library's digital collections: https://digitalcollections.sdsu.edu/sdsu-student-symposium.
To learn more about the VISTA program and the Institute for the Arts, Humanities, and Social Justice, visit their website at https://iahsj.sdsu.edu/.

Photo Credit to Peter Merts

Southern California Conference for Undergraduate Research (SCCUR)

Southern California Conference for Undergraduate Research (SCCUR) is a non-profit United States Internal Revenue Service certified tax-exempt 501(c)(3) organization of Southern California faculty, administrators, and interested members of the community who share the common goal of improving education for college and university students through hands-on experiences of undergraduate research, scholarship, and creative activity.

2026 Annual SCCUR Meeting to be hosted by San Diego State University

The non-profit organization collaborates with higher education institutions in Southern California to host the annual SCCUR Meeting, providing a platform for undergraduate students to present their research and creative activity in a professional setting, gain valuable feedback, and build essential communication skills. The annual SCCUR conference brings together over 1000 undergraduate researchers, faculty mentors, graduate school representatives, and guests from over 80 institutions across the nation.

The call for abstracts is expected to open in April 2026 with the conference to be held on Saturday, Nov. 21, 2026 from 8 a.m. to 5 p.m. in the Conrad Prebys Aztec Student Union.

Learn more at sccur.org and https://research.sdsu.edu/sccur-2026

Oral Presentations

Friday, February 27, 2026

Sessions A-E

Oral presentations consist of 5-minutes for setup, followed by 10-minutes for presenting and end with a 5-minute question and answer period. Participants and guests are asked to enter or leave the rooms only between presentations.

SDSU | San Diego State University

(U)=Undergraduate; (M)=Master's; (D)=Doctoral

Friday, February 27, 2026

A Sessions: Oral Presentations

Session A-1

Behavioral and Social Sciences (G) 1
Friday February 27, 2026 9:00 a.m.
Legacy Suite

9:15 a.m.
Geographic Patterns of Domestic Violence Service Utilization in Armenia: A Mixed Methods Study
Araz Majnoonian, Public Health, Global Health Track (D)

9:35 a.m.
The Precautionary Principle of Dignity: Toward a Freirean Ethics of Human–AI Collaboration
Dean Hall, Sociology (M)

9:55 a.m.
Interdisciplinary Healing: Exploring the Intersectionality of Modern Biomedicine and Curanderismo in...
Hannah Gordon, Public Health, Latin American Studies (M)

10:15 a.m.
Bicultural Resilience Under Pressure: Discrimination and Health in Latine Youth
Rei Perez Munoz, Child & Family Development (M)

10:35 a.m.
NSF SDHeart Homeless Density PITC and Resource Analysis
Timothy Boyd, Big Data Analytics (M) & Craig Lewis (Co-Presenter)

Session A-2

Biological and Agricultural Sciences (U) 1
Friday February 27, 2026 9:00 a.m.
State Suite

9:15 a.m.
Persistence of Gut Microbiome Through Dauer Formation in Caenorhabditis elegans
Alfredo Maldonado Garduno, Biology (U)

9:35 a.m.
Using Engineered TTS Tags for Enhanced Expression and Purification of Alpha S2-Casein
Diego Jalate Ortega, Chemistry, Emphasis in Biochemistry (U)

9:55 a.m.
Shelling out the Truth: Using Accelerometers to Decode Desert Tortoise Nesting
Hana Koyama, Biology (U)

10:15 a.m.
Patterns of Road Crossing Behavior in the Sulawesi Moor Macaque (Macaca maura)
Olivia DeVito, Sustainability (U)

10:35 a.m.
A Megaplasmid is Required for Roseobacter Stimulated Animal Metamorphosis
Shivani Mahesh, Cellular and Molecular Biology (U)

Session A-3

Business, Economics & Public Administration (U) 1
Friday February 27, 2026 9:00 a.m.
Lipinsky Suite

9:15 a.m.
Oversight and Regulations of Sober Livings in San Diego County
Charlie Wolf, IS3D: Psychology, Sociology, Criminal Justice (U)

9:35 a.m.
CrossroadsSD: A new tool to solve an age-old problem
Hayden Hughes, N/A (High School - Working with SDSU Faculty)

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9:55 a.m.
Park Safety Evaluation Through Fear Mapping
Irahi Salazar, Public Administration (U)

10:15 a.m.
The Ramp of Risk
Javier Barajas, Urban Studies (U)

10:35 a.m.
ISkate Safety on Hilltop Way: An Empirical Approach Toward Commuter Safety on SDSU Campus
Matthew Philbin, Economics; Linguistics (U)

Session A-4

Education (U) 1
Friday February 27, 2026 9:00 a.m.
Park Boulevard

9:15 a.m.
Encouraging Spontaneous Interactions between Mainstream and Special Needs Students
Camilla Ojeda, Psychology (U)

9:35 a.m.
Beyond Primary Education: How Students Use Social Actions/Interactions to Create & Sustain Identity
Destanee Jordan-Geraldo, Communication, Minor in Sociology (U)

9:55 a.m.
Presentation Withdrawn

10:15 a.m.
Impacts of the Wetland Unit Project Regarding Well-being and Green Spaces across Students of Color's...
Miriam Ortiz, Environmental Engineering (U)

10:35 a.m.
Place-based science and Local Connections to broader STEM and environmental Ideas in a Wetland Acti...
Zoe Linden, Liberal Studies, Emphasis in Elementary Education (U)

Session A-5

Engineering and Computer Science (U) 1
Friday February 27, 2026 9:00 a.m.
Pride Suite

9:15 a.m.
Scaling Laws of Enzyme Catalysis: Investigating Relationships Between Enzyme Mass and Speed
Damaris Menendez, Mechanical Engineering, Emphasis in Bioengineering (U)

9:35 a.m.
Presentation Withdrawn

9:55 a.m.
Comet Particle Image Simulation for Star Tracker Development
Varun Aruldas, Aerospace Engineering (U)

Session A-6

Health Nutrition and Clinical Sciences (U) 1
Friday February 27, 2026 9:00 a.m.
Metztli

9:15 a.m.
Engagement, barriers, & facilitators of health-related social needs screening in pregnant patients
Anthony Quiroz, Public Health (U) & Arely Ortega (Co-presenter)

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9:35 a.m.
Where are SNAP/CalFresh benefits used? Exploring responses from the People's Produce Mobile Market
Asensa Sadiki, Business Management, Emphasis in Entrepreneurship (U) & Olivia Dark-Morrell (Co-presenter)

9:55 a.m.
Lysosomal enhancement for the treatment of Neiman Pick Disease
Bobbi Roxanne, Psychology, Emphasis in Neuroscience, Pre-Med (U)

10:15 a.m.
Characterizing the Study Population: Demographics of Pregnant Patients in the Imperial Valley
Daniela Rodriguez, Psychology (U)

10:35 a.m.
Hematopoietic Stem Cells Gene Therapy for Mucopolysaccharidosis Type IIIC
Noah Lemercier Barthel, Biochemistry (U)

Session A-7

Humanities, History, Literature, & Philosophy (U) 1
Friday February 27, 2026 9:00 a.m.
Aztlan

9:15 a.m.
"Betty Crocker: The Liminal Figure That Shaped American Propaganda."
Alyssa Godwin, History, English. (U)

9:35 a.m.
Rigging the Super Bowl: Kendrick Lamar and the Spectacle of the Halftime Performance
Jane Straughn (Co-presenter)

9:55 a.m.
Place-based science and Local Connections to broader STEM and environmental Ideas in a Wetland Acti...
Zoe Linden, Liberal Studies, Emphasis in Elementary Education (U)

10:15 a.m.
Presentation Withdrawn

10:35 a.m.
A Divided Orchestra
Dehrich Moore, History (U)

Session A-8

Physical and Mathematical Sciences (U) 1
Friday February 27, 2026 9:00 a.m.
Mata'yuum

9:15 a.m.
Photocatalytic Upcycling of Waste Carbon and Nitrogen into Organonitrogen Chemicals
Elizabeth Chai, Biochemistry (U)

9:35 a.m.
Schlieren Imaging of Ultrasound Wave Interference Using a Pulsed LED
Faith Poutoa, Physics (U)

9:55 a.m.
Employing classical molecular dynamics to guide functional improvements in heme-based de novo enzyme...
Mateo Contreras, Chemistry (U)

10:15 a.m.
Astrometric Measurement of Triple Stars WDS 00485+3924 MLB 4ABC
Natalia Smith, Physics (U)

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10:35 a.m.
Integrating within-host viral dynamics with between-host transmission of SARS-CoV-2
Thea Enache, Public Health, Computer Science, Minors in Statistics & Math (U)

Session A-9

Physical and Mathematical Sciences (U) 1
Friday February 27, 2026, 9:00 a.m.
Visionary Suite

9:15 a.m.
Presentation Withdrawn

9:35 a.m.
Acting Out the Silence: Queer Performance and the Fight Against Erasure
Brett Puppilo, Theatre Arts (M)

9:55 a.m.
Everything Is Marketing: How Pop Artists Navigate Artistic Integrity And Commercial Viability
Josef Ross-Ma'u, Music in Global Composition (M)

10:15 a.m.
Christ's Entry into Brussels in 1889 and Anti-Theocratic Iconography: A Theopolitical Phantasmagoria
Miriam Scholte, Art History (U)

10:35 a.m.
Presentation Withdrawn

Session A-10

Behavioral and Social Sciences (U) 1
Friday February 27, 2026 9:00 a.m.
Presidential Suite

9:15 a.m.
The Manosphere, Misused Science, and the Monster We Built
Chandria Arboleda, Political Science (U)

9:35 a.m.
Translating Community Realities into Sanitation Justice
Tavee Binavi, Criminal Justice (U)

9:55 a.m.
Iris Avenue Trolley Station Fear Mapping
Guillermo Reza, Criminal Justice (U)

10:15 a.m.
Study Spaces and Student Well-Being: How Campus Environments Influence Emotional Health
Marc Dayon, Urban Studies -- Planning, Design, & Management (U) & Kimberly Flores (Co-presenter)

10:35 a.m.
Understanding the specific health and healthcare needs of women on the street in San Diego, CA
Penelope Dalton, Chemistry, Emphasis in Biochemistry (U) & Paul DeStefano (Co-presenter)

Session A-11

Behavioral and Social Sciences (U) 2
Friday February 27, 2026 9:00 a.m.
Leon Williams Room, Love Library 431

9:15 a.m.
Presentation Withdrawn

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9:35 a.m.
Glycemic Awareness and Behavior Change Using Continuous Glucose Monitoring in Young Adults with T2D
Fernanda Ronzon, Psychology (U)

9:55 a.m.
Access to Continuous Glucose Monitors for Type 2 Diabetes: A Health Policy Review to Inform Research
Jaslin Galvan, Business Finance (U)

10:15 a.m.
When Misogyny Becomes a Hate Crime: Reclassifying Repeated Offenses of Domestic and Sexual Violence
Jillian Olson, Political Science (U)

10:35 a.m.
Cognitive Impairment and Behavior Problems in Children With and Without Prenatal Alcohol Exposure
Kayla Neutel, Psychology; Criminal Justice (U)

Friday, February 27, 2026

B Sessions: Oral Presentations

Session B-1

Behavioral and Social Sciences (G) 2
Friday February 27, 2026 11:00 a.m.
Legacy Suite

11:15 a.m.
Visualizing SDOH and Spatiotemporal Patterns of Homeless Encampments in San Diego County
Annie Mewkill, Geography: GIScience (M)

11:35 a.m.
People-Focused Norms: Interpersonal Interaction in STEM Research Labs And Student Outcomes
Brooke Isrow, Psychology (M)

11:55 a.m.
The Geography of History: Connecting Spatial Inequality and Historic Preservation
Carli Henderson, Geography (M)

12:15 p.m.
Los Caminos De La Vida: Family Obligations, Grit, Gender & Mental Health in Latino young immigrants
Stephanie Morales Linares, Child Development (M)

12:35 p.m.
Presentation Withdrawn

Session B-2

Biological and Agricultural Sciences (G) 1
Friday February 27, 2026 11:00 a.m.
State Suite

11:15 a.m.
Targeted and Nontargeted Approaches to Assess Halogenated Pollutants in the California Brown Pelican
Alicia Agas, Public Health, Environmental Health (M)

11:35 a.m.
Corticosterone Dosing Verification in the Italian Wall Lizard (Podarcis siculus)
Amber Singh, Evolutionary Biology (D)

11:55 a.m.
Investigating the Bacteroidales injection systems in a human gut microbe
Josie Rivera Alfaro, Cell and Molecular Biology (D)

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12:15 p.m.
Engineering Transient Stability in Disordered Casein Proteins to Improve Solubility, Phosphorylation
Sierra Murrell, Chemical Biology (D)

12:35 p.m.
Tolerating the Anthropocene: Squamate Life History and Patterns of Tolerance to Human-Modifications
Tucker Heptinstall, Evolutionary Biology (D)

Session B-3

Business, Economics & Public Administration (U/G) 1
Friday February 27, 2026 11:00 a.m.
Lipinsky Suite

11:15 a.m.
Change with the Times or Stick to Your Guns? Corporate Political Activism Consumer Perceptions
Amanda Stader, Business Administration (U)

11:35 a.m.
Economic Impact of Transitioning from Annual to Perennial Wheat : Regional Input Output Analysis.
Kwasi Asomani, Geography (M)

11:55 a.m.
Review of Methods: Supporting Healthy Communities in San Diego through the 1000 Cities Challenge
Madeline Roke, Kinesiology Pre-PT (U)

12:15 p.m.
Water Scarcity, Agricultural Land Retirement, and Restoration Ecology in the San Joaquin Valley
Rex Peacock, Geography (D)

Session B-4

Education (G) 1
Friday February 27, 2026 11:00 a.m.
Park Boulevard

11:15 a.m.
Who belongs in Computer Science and Engineering? Gender, Equity, and CTE Pathways
Aidan Connell, Educational Leadership [PreK-12 School Leadership] (D)

11:35 a.m.
Teachers' Perspectives and Experiences of Safety at School
Amanda Nonomura, Education (D)

11:55 a.m.
Gatekeeping in STEM: Sense of Belonging Among Students in Introductory Biology and Chemistry
Elizabeth Nguyen, Education (D)

12:15 p.m.
Effects of Dual Credit Accumulation Among Equity Impacted Student Populations in California
Judd Johnson, Ed.D. Education Leadership-Community College/Postsecondary (D)

12:35 p.m.
A Roadmap for School Districts: Principal Experience and Engagement in Evaluation Systems
Olivia Fonzi, Educational Leadership (D)

Session B-5

Engineering and Computer Science (G) 1
Friday February 27, 2026 11:00 a.m.
Pride Suite

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11:15 a.m.
Exploring Graphitization of Acrylic and Thermoplastic Polymers through New UV Photolithography Appr...
Carter Faucher, Bioengineering (D)

11:35 a.m.
High time resolution community-based air monitoring in California's Salton Sea air basin
Ehsan Goftari, Mechanical and Aerospace Engineering (D) & Jose Carias (Co-presenter)

11:55 a.m.
Numerical and Experimental Study of Local Defect Resonance in Ultrasonic Guided Waves Scattering
Mingyue Zhang, Structural Engineering (D)

12:15 p.m.
Wideband Circularly Polarized Receive Fixed Beam Array Antenna for X-/Ku-Band SATCOM
Nhat Truong, Electrical Engineering (D)

12:35 p.m.
Optimized 3D Printing of Martian Regolith for In-Situ Extraterrestrial Manufacturing
Zackary Skinner, Mechanical and Aerospace Engineering (D)

Session B-6

Health Nutrition and Clinical Sciences (G) 1
Friday February 27, 2026 11:00 a.m.
Metztli

11:15 a.m.
Interpersonal and structural determinants of HIV Incidence among Women in Wakiso and Hoima, Uganda
Alex Daama, Public Health-Epidemiology track (D)

11:35 a.m.
Environmental Fate and Chemical Profile of Microfibers from Cigarette Filters
Alexa Fields, Environmental Health Sciences (M)

11:55 a.m.
Protective Factors for Intimate Partner Violence in Transgender and Nonbinary Populations
Cleo Spencer, Public Health (M)

12:15 p.m.
Presentation Withdrawn

12:35 p.m.
Elucidating the Mechanism of Enantioselective Cyclopropanation-Ring Expansion of Indoles to Quinolin
Nilay Dogan, Computational Chemistry (D)

Session B-7

Humanities, History, Literature, & Philosophy (G) 1
Friday February 27, 2026 11:00 a.m.
Aztlan

11:15 a.m.
US-Mexico Border Surveillance Study: Community Voices on Technology and AI
Alice Wilshire, Homeland Security (M)

11:35 a.m.
Sonic Subordination: Nationalist Unification in the Spanish Civil War
Caleb Cable, History (M)

11:55 a.m.
Finding Sympathetic Imaginations in J.R.R. Tolkien's Ecologies
Edgar Brito, English (M)

12:15 p.m.
Building a City from the Kitchen Up: Culinary Labor, Memory, and the Shaping of New Orleans
Gabriel Holliday, History (M)

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12:35 p.m.
Flower Power and Hanoi Jane: The American Female Body (1967-1972)
Kylie Palmer, History (M)

Session B-8

Physical and Mathematical Sciences (G) 1
Friday February 27, 2026 11:00 a.m.
Mata'yuum

11:15 a.m.
Comparative Chemical Profiling of Electric Vehicle and Conventional Tires with Hazard Ranking
Eli Lew, M.S. Public Health [Environmental Health Sciences] (M)

11:35 a.m.
Selective Visible-Light CO_2 Reduction via Single-Atom Nickel Heterojunction Photocatalyst
Gonto Johns, Chemistry (D)

11:55 a.m.
Elucidating the Vibrational Stark Effect of Carbonyl Compounds as Adsorbates in MOF-74
Vayle Vera Cruz, Chemistry (D)

12:15 p.m.
Elucidating the Role of Preferential Binding in Facilitating Enantioselective Reactions
Wyatt Mathers, Chemistry (M)

12:35 p.m.
When and Where Water Flows: Seasonality of Dominant Hydrologic Processes
Katrina Hinke, Watershed Science (M)

Session B-9

Behavioral and Social Sciences (U) 3
Friday February 27, 2026 11:00 a.m.
Visionary Suite

11:15 a.m.
Presentation Withdrawn

11:35 a.m.
ChatGPT Ate My Homework: A Comparative Study of Generative AI Sentiments Among SDSU Colleges
Erin Petersen, Sociology, Anthropology (U)

11:55 a.m.
Exploring the Relationship Between Dental Anxiety and Social Support Among Adults
Janelle Attiq, Biology (U)

12:15 p.m.
Maternal Dietary Choline Levels Alter the Effects of Prenatal Alcohol on Activity
Maya Rusnak, Psychology: Emphasis in Neuroscience (U)

12:35 p.m.
Religiosity, Sexual Identity, and Negotiated Salience: A Critical Review of Current Theories
Quinn Ng, Humanities (U)

Session B-10

Behavioral and Social Sciences (G) 3
Friday February 27, 2026 11:00 a.m.
Presidential Suite

11:15 a.m.
The Color of Order: The United States' History of Racial Inequality in Policing
Amaya Lopez, Criminal Justice and Criminology (M) & Madison Wilkins (Co-presenter)

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11:35 a.m.
The effect of cultural continuity and ERI on Native students' experience of higher education
Ayla Sutton, Psychology (M)

11:55 a.m.
Past and Present Comparison of Haitian Kreyol Language Ideologies and Orthography Preferences
Isabella Mullins, Applied Linguistics (M)

12:15 p.m.
Adapting a Faith-Based Physical Activity Program for Rural Latinas in Imperial Valley Using IM-ADAPT
Jackelyne Garcia-Villegas, Clinical Psychology (D)

12:35 p.m.
Presentation Withdrawn

Session B-11

Media in Changing World (U/G) 1
Friday February 27, 2026 11:00 a.m.
Leon Williams Room, Love Library 431

Session Cancelled Due to Withdrawals and Rescheduling

Friday, February 27, 2026

C Sessions: Oral Presentations

Session C-1

Behavioral and Social Sciences (G) 4
Friday February 27, 2026 1:00 p.m.
Legacy Suite

1:15 p.m.
Politics, culture, and orthographic variation in TikTok and X/Twitter discourse
Alan Minjares Arjona, Spanish (M)

1:35 p.m.
México's New Milpa: Unpacking the Processed Food and Beverage Epidemic
Alejandra Torres Gomez, Health Promotion and Behavioral Science, Latin American Studies (M)

1:55 p.m.
Do Children With DLD Know When They Know? Confidence and Neural Engagement During Word Learning
Jacqueline Zhang, Language and Communicative Disorders (D)

2:15 p.m.
Assessing Health Needs and Unmet Health Needs for In-Transit Migrant Women at the U.S.–Mexico Border
Nadia Hemmat, Public Health, Global Health (D)

2:35 p.m.
Assessing drivers for early secondary school leaving among young women in developing countries
Shubhi Sharma, Public Health, Global Health Track (D)

(U) =Undergraduate; (M) = Master's; (D)=Doctoral

Session C-2

Biological and Agricultural Sciences (G) 2
Friday February 27, 2026 1:00 p.m.
State Suite

1:15 p.m.
Lizards in the Hot Seat: the evolution of thermal traits in populations of Podarcis siculus
Alyssa Head, Evolutionary Biology (M)

1:35 p.m.
Chemically Enhanced Epigenetic Reprogramming of The Naked Mole-Rat
Erik Christy, Cellular and Molecular Biology (M)

1:55 p.m.
Volatile Profiles Characterization of Commercial Vegan Tuna Products
Judy Figueroa, Food Science (M)

2:15 p.m.
BIO-INSPIRED MINING OF CRITICAL MINERALS
Mauricio Salazar, Cellular and Molecular Biology (M)

2:35 p.m.
City Life: Behavioral Shifts in Urbanized Geckos
Samuel Wilson, Evolutionary Biology (M)

Session C-3

Behavioral and Social Sciences (G) 5
Friday February 27, 2026 1:00 p.m.
Lipinsky Suite

1:15 p.m.
Presentation Withdrawn

1:35 p.m.
Headstrong: Concussion Burden and Criminal Legal Outcomes in the NFL
Jackson Perry, Criminal Justice (M)

1:55 p.m.
Pass the Salt: The Intergenerational Cycle of Childhood Trauma in Families Reported to CPS
Jordan Siratt, Child Development (M)

2:15 p.m.
Presentation Withdrawn

2:35 p.m.
Presentation Withdrawn

Session C-4

Education (U/G) 1
Friday February 27, 2026 1:00 p.m.
Park Boulevard

1:15 p.m.
Culturally Relevant Experiential Learning & Its Impact for Women in STEM
Daniela Ortega-Ramos, Criminal Justice (U)

1:35 p.m.
Hot Take: Can AI be used for STEM Servingness?
Daniela Hernandez, Postsecondary Educational Leadership in Student Affairs (M)

1:55 p.m.
Reimagining SDSU's Communication and Critical Thinking GE Learning Outcomes for the Age of AI
Sierra Vakili, Rhetoric and Writing Studies (M)

2:15 p.m.
Designing Ethical AI Research: Lessons from a Student Study on Teacher Workload and Well-Being
Antonio Romo, Psychology (U)

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Session C-5

Engineering and Computer Science (G) 2
Friday February 27, 2026 1:00 p.m.
Pride Suite

1:15 p.m.
A scalable machine learning decision support tool for California wildfire management
Dalston Karto, Computational Science (M)

1:35 p.m.
Real-Time Cardiac Diagnostics: Improved Selectivity and Sensitivity with the BioFET
Katie Naretto, Bioengineering (M) & Zaina Kudchiwala (Co-presenter)

1:55 p.m.
New Generation of High Power Density 3D Interdigitated Supercapacitors
Kevin Medici, Bioengineering (Biomechanics) (M) & Nicholas Theriault (Co-presenter)

2:15 p.m.
Simultaneous monitoring of dopamine and lactate in chemical hypoxia using a carbon microelectrode
Neharika Ravichandran, Bioengineering (M)

2:35 p.m.
Presentation Withdrawn

Session C-6

Health Nutrition and Clinical Sciences (U/G) 1
Friday February 27, 2026 1:00 p.m.
Metztli

1:15 p.m.
Evaluating the Institute of Reproductive Grief Care's Professional Standard Designation Program
Divya Sen, Public Health - Health Promotion & Behavioral Sciences (M)

1:35 p.m.
Transcriptional Regulation of Metamorphosis-Associated Contractile Structures by a Sigma Factor
Leah Ponce, Cell and Molecular Biology (M)

1:55 p.m.
Presentation Withdrawn

2:15 p.m.
Investigating the Association Between Adrenergic α_1-antagonist Use and Peripheral Venous Disease
Nikolay Ivanov, Public Health (MPH) (M)

2:35 p.m.
The Role of Social/Emotional Support and Loneliness on Long COVID Recovery and Impairment
Sierra Turbeville, Public Health, Health Promotion & Behavioral Science (M)

Session C-7

Humanities, History, Literature, & Philosophy (G) 2
Friday February 27, 2026 1:00 p.m.
Aztlan

1:15 p.m.
Presentation Withdrawn

1:35 p.m.
The Cost of Returning Home: The Act of Repatriation and its Economic Impact on the Museum Industry
Leeann Jones, History (M)

(U) =Undergraduate; (M) = Master's; (D)=Doctoral

1:55 p.m.
Working for the Nation: Women's Citizenship in Life Magazine, 1939-1946
Rachel Layton, History (M)

2:15 p.m.
Presentation Withdrawn

2:35 p.m.
Improvisation as Autobiography: Postirony for Music Pedagogy
Zane Shrem-Besnoy, Music, Composition Specialization, M.M. (M)

Session C-8

Physical and Mathematical Sciences (G) 2
Friday February 27, 2026 1:00 p.m.
Mata'yuum

1:15 p.m.
The Accessibility of Ring-Expanded Carbenes
Bethany Sawyer, Chemistry (D)

1:35 p.m.
Assessing the Restricted Open-Shell Kohn-Sham Approach for Accurate Prediction of Excitation Energy
Eugene Kwon, Chemistry (D)

1:55 p.m.
TEM Analysis of the Multi-subunit IKK Complex from Drosophila Melanogaster
Ingrid Sebor, Chemistry (M)

2:15 p.m.
Quantitative Kinetic Control in The Non-Seeded Photochemical Synthesis of Silver Nanoparticles
Joseph Charlonis, Chemistry (D)

2:35 p.m.
Doppler Boosting as a Driver of Asymmetry in Double-Peaked Emission Lines from Accretion Disks
Josh Friedman, Astronomy (M)

Session C-9

Behavioral and Social Sciences (G) 6
Friday February 27, 2026 1:00 p.m.
Visionary Suite

1:15 p.m.
Exploring Role of Gender and Sexual Abuse on Mental Health in Adolescents with Childhood Adversity
Alexys Lavis, Psychology (M)

1:35 p.m.
Exploring responses to the Women's March in the context of gendered nationalism in Pakistan
Beenish Fatima, Political Science (M)

1:55 p.m.
From Correcto to Cool: Perceptual Dialectology of Spanish in the San Diego - Tijuana Border Region
Sandra Mariana Garcia Cervantes, Spanish (M) & Erik Muro Sandoval (Co-presenter)

2:15 p.m.
Enhancing Human Mobility Prediction through an OSINT-Based LLM Multi-Agent System
Shangyu Lou, Geography (D)

2:35 p.m.
Presentation Withdrawn

Session C-10

Behavioral and Social Sciences (U) 4
Friday February 27, 2026 1:00 p.m.
Presidential Suite

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1:15 p.m.
Where We Feel Safe: A Study of Perceived Safety in My Apartment Complex
Aidan Monarrez, Criminal Justice (U)

1:35 p.m.
Constructing a Candidate: Identity Creation In Student Government Presidential Candidate Statements
Anna Keaveny, Linguistics (U)

1:55 p.m.
Defying Diet Narratives: Content Analysis of Diabetes Nutritional Advice on Social Media
Camila Canez, Psychology (U)

2:15 p.m.
The struggles for youth in underserved communities.
Federico Avalos, Criminal Justice (U)

2:35 p.m.
Adverse Childhood Experiences, Biculturalism, Self esteem, and negative outcomes
Ivan Martinez, Psychology (U)

Session C-11

Behavioral and Social Sciences (G) 7
Friday February 27, 2026 1:00 p.m.
Leon Williams Room, Love Library 431

1:15 p.m.
Ethical, Legal, and Social Issues in GeoAI: A Case Study of San Diego's Unsheltered Population
Alexandra Nguyen, Big Data Analytics (M)

1:35 p.m.
Insights from a Framework-Guided Process Evaluation of a Mother-Daughter Wellness Program
Elissa Gomez, Public Health - Health Behavior Sciences (D)

1:55 p.m.
Unclutch Your Pearls: Using Narrative Medicine to Improve Sexual Health Across the Lifespan
Jasmine Barnes, Public Health-Health Behavior Track (D)

2:15 p.m.
Characterizing fatalism in people who use drugs and its role as a mediator between social contexts
Nithya Narayanan, Public Health-Epidemiology track (D)

Friday, February 27, 2026

D Sessions: Oral Presentations

Session D-1

Behavioral and Social Sciences (G) 8
Friday February 27, 2026 3:00 p.m.
Legacy Suite

3:15 p.m.
Presentation Withdrawn

3:35 p.m.
The role of language and depression in the associations of PTSD and cognition among Latine adults
Carolina Costa, Psychology (M) & Andrea Chavira (Co-presenter)

3:55 p.m.
An Observational Code for Sustained Time-Based Child Compliance in the DPICS Clean-Up Situation.
Casius Snyder, Psychology (M) & Sienna Perez (Co-presenter)

4:15 p.m.
Decolonizing Birth: Creating a Practice of Reclaiming Body Sovereignty
Jada Reed, Feminist Studies (M)

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4:35 p.m.
Mental health outcome improvements: Early psychosis intervention in Children & TAY
Wookjin Park, Public Health (M)

Session D-2

Biological and Agricultural Sciences (G) 3
Friday February 27, 2026 3:00 p.m.
State Suite

3:15 p.m.
Decoupling Water, Vegetation, and Economic Outcomes in an Agricultural Conservation Program
Adam Oliphant, Geography (D) & Cassidy White (Co-presenter)

3:35 p.m.
Prenatal E-Cigarette Exposure: Consequences for the Cardiopulmonary System
Clarissa Savko, Cell and Molecular Biology (D)

3:55 p.m.
Investigating the Megator-dependent dosage compensation repressive pathway
Kavi Gonur, Cell and Molecular Biology (D)

4:15 p.m.
Persistent Organic Pollutants in Mekong River Irrawaddy Dolphins (Orcaella brevirostris)
Samantha Shinder, Public Health, Global Health Track (D)

4:35 p.m.
Factors Required for Nuclear Pore Complex Rejuvenation during Drosophila Oogenesis
Tram Nguyen, Biology (M)

Session D-3

Physical and Mathematical Sciences (G) 3
Friday February 27, 2026 3:00 p.m.
Lipinsky Suite

3:15 p.m.
Data-driven optothermal engineering of TMD moiré superlattices
Antonio Cobarrubia, Computational Science (D)

3:35 p.m.
Mixed Substrate Utilization: Case study of Methylotuvimicrobium alcaliphilum 20ZR
Dina Sarsam, Molecular Biology (M)

3:55 p.m.
Chiral Layered Photocatalysis for Carbon Dioxide Reduction and Plastic Waste Decomposition
Edgar Castillo, Chemistry (M)

4:15 p.m.
Evaluating the Purity of Engineered Protein Fibers Generated from a Bacterial Surface Display
Lauren Campbell, Chemistry (M)

4:35 p.m.
Predicting HIV Resting Cell Infection Using Novel Math-Model Informed Neural Networks (MINN)
Sebastian Griego, Applied Mathematics (M)

Session D-4

Humanities, History, Literature, & Philosophy (G) 3
Friday February 27, 2026 3:00 p.m.
Park Boulevard

3:15 p.m.
The Sedition Act of 1798: Freedoms and Fights among the Founding Fathers
Ferdinando Scappaticci, History, Concentration in War and Society Studies (M)

3:35 p.m.
An Exploratory Review of Arabic Dual Emergence in L2 Learners under the Processability Theory
Hamsa Al Mashhadani, Linguistics (M)

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3:55 p.m.
In Memoriam: Epigraphic & Numismatic Commemoration of Military Service in Ancient Rome
Jeffrey Abrogena, History with a concentration in War and Society Studies (M)

4:15 p.m.
The Degradation of the Land and the Worker: The Story of San Quintín
Lauren Gomez, Latin American Studies (M)

4:35 p.m.
The Struggle for Social Equality & the Political legacy of American Revolutionaries
Nakai Contreras, Political Science (M)

Session D-5

Engineering and Computer Science (G) 3
Friday February 27, 2026 3:00 p.m.
Pride Suite

3:15 p.m.
Brain-on-a-Chip: Electromagnetic Assisted Drug Delivery Across Microfluidic Blood–Brain Barrier
Jessica Munoz, Bioengineering (M) & Sophia Gonzalez (Co-presenter)

3:35 p.m.
Redox Amplification in 3D Glassy Carbon Interdigitated Electrode Arrays for Glucose Sensing
Paulette Suro, Bioengineering (M) & Senay Yilma (Co-presenter)

3:55 p.m.
Modeling post-fire surface and subsurface hydrology for various land use and land cover conditions
Ramya Chandrasekaran, Civil Engineering (M)

4:15 p.m.
Fiber-reinforced Polyurea Foams for Next-Gen Protective Structures
Sophia Benkirane, Bioengineering (M)

Session D-6

APIDA Research and Servingness/Sage Partnerships
Friday February 27, 2026 3:00 p.m.
Metztli

3:15 p.m.
Seismic factors affecting pre-1980 structures
Charles Dare, Geographic Information Science (M)

3:35 p.m.
Reframing the Stars: Ancient Chinese Astronomy and Asian American Scientific Legitimacy.
Jose Segura Figueroa, Geology and Astronomy (Double Major) (U)

3:55 p.m.
Understanding mitochondrial functionality after GAA excision in Friedreich's Ataxia
Juan Londono Esguerra, Microbiology (U)

4:15 p.m.
A Cross-Cultural Comparison of Cultural Representation in Romantic Movies
Skye Akimseu-Calderbank, Sociology (U)

4:35 p.m.
Gunpla: A Study of the Impacts of a Hobby on STEM Careers
Teddy Morando, Civil Engineering (U)

Session D-7

Humanities, History, Literature, & Philosophy (U/G) 1
Friday February 27, 2026 3:00 p.m.
Aztlan

3:15 p.m.
The Piano Transcriptions of The Nutcracker
Agustin Resendiz, Critical Studies in Music/Graduate Artist Diploma in Piano Performance (M)

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3:35 p.m.
Presentation Withdrawn

3:55 p.m.
Presentation Withdrawn

4:15 p.m.
AI and Plagiarism: A Review of Pedagogical AI Policy
McKenna Moock, Rhetoric and Writing Studies (U) & Olivia Goldstein (Co-presenter)

4:35 p.m.
The Tragedy of the Civil War First Lady: An Evaluation of Mary Todd Lincoln's Case of Mental Illness
Mike Raska, History (U)

Session D-8

Physical and Mathematical Sciences (U) 2
Friday February 27, 2026 3:00 p.m.
Mata'yuum

3:15 p.m.
Synthesis of Carmaphycin Analogs as Potential Therapeutic Agents Against Trichomonas Vaginalis
Andrew Meyer (U) & Andrea Cordero (Co-presenter)

3:35 p.m.
Do Icy Moons in the Outer Solar System Receive Enough Sunlight for Photosynthesis?
Christopher Farias, Astronomy (U)

3:55 p.m.
Design of a Pulse-Width Modulation Array Controller for Ultrasound Wave Interference
Leon Welstand, Electrical Engineering (U)

4:15 p.m.
Mapping Cool Interstellar Gas in Early-Type Galaxies via Ca II and Na I
Lizeth Sanchez Zamudio, Astronomy (U)

4:35 p.m.
Probing Silver Nanoparticle Production Using Fast UV-Visible Absorption Spectroscopy
Rocco Ammirata, Biochemistry (U)

Session D-9

Behavioral and Social Sciences (U) 5
Friday February 27, 2026 3:00 p.m.
Visionary Suite

3:15 p.m.
Recruitment and Baseline Characteristics of African American Women in a Prenatal Yoga App Study OK
Devin Vitug, Major: Kinesiology Pre-Physical Therapy (U) & Brandon Deal (Co-presenter)

3:35 p.m.
Self-Compassion, Attachment Security, and Love of Life in Latine College Students
Mirtha Heredia, Psychology (U)

3:55 p.m.
Neurobehavioral Indices of Cognitive Flexibility Alterations in Young Adult Binge Drinkers
Sara Macumu, Psychology, Emphasis in Neuroscience (U)

4:15 p.m.
Prenatal Cannabidiol Exposure Alters Emotion-Related Behavior
Savana Hampton, Psychology, Emphasis in neuroscience (U)

4:35 p.m.
Gender, Cognition and Power: Psychological and Neurological Bias in Political Leadership
Priya Kumar, Political Science (U)

Session D-10

Physical and Mathematical Sciences (U/G) 1
Friday February 27, 2026 3:00 p.m.
Presidential Suite

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3:15 p.m.
Moor macaques' (Macaca maura) interactions with plastic waste in South Sulawesi, Indonesia
Isabel Roji, Anthropology (M)

3:35 p.m.
Photophysics of Gold Cavity Coupled Moiré Exciton Polaritons in MoS_2/WS_2 Heterobilayers
Megan Oseas, Physics (U)

3:55 p.m.
Optothermal Properties of Van der Waals Heterostructures Supported by Machine Learning
Nate Webb, Double: Physics, Computer Science (U)

4:15 p.m.
Optoelectrical Properties of Interlayer-Excitons in Gated Moiré Superlattice Heterostructures
Vincent Juliano, Physics (U)

Session D-11

Behavioral and Social Sciences (G) 9
Friday February 27, 2026 3:00 p.m.
Leon Williams Room, Love Library 431

3:15 p.m.
CVD Risk Moderates the Association Between TBI Severity and Attention in Latino Adults
Alyssa Lawrence, Psychology (M)

3:35 p.m.
Understanding Health Literacy Knowledge, Experience, and Intentions Among Healthcare Professionals
Candace Juhala, Public Health in Health Promotion and Behavioral Sciences (M)

3:55 p.m.
Franchise Capitalism and The Undermining of Worker Power
Jerry Paras, Sociology (M)

4:15 p.m.
Cultural Action/Inaction: How Communities Choose to Understand Addiction and How Mothers Show Love
Julio Rodriguez, Latin American Studies, Public Administration (M)

4:35 p.m.
Credit Access and the Survival of Small and Immigrant-Run Food Retailers in San Diego
Victoria Joya Euceda, Geography (D)

Friday, February 27, 2026

E Sessions: Oral Presentations

Session E-1

Cancer Research Convergence (U/G) 1
Friday February 27, 2026 9:00 a.m.
Templo Mayor

9:15 a.m.
Fibroblast Autophagy Inhibition Alters Mammary Gland Development
Bianca Rollbusch, Biology, Emphasis in Cellular and Molecular Biology (U)

9:35 a.m.
Proton versus Photon VMAT Craniospinal Irradiation for Hematologic Leptomeningeal Disease
Brianna Hostler, Psychology, Emphasis in Neuroscience (U)

9:55 a.m.
Rheology of Irradiated Alginate-Gelatin Hydrogel Scaffolds
Connor Schmidt, Physics, Music (U)

10:15 a.m.
Assessing the role of obesity in ovarian tumor metastasis
Emily Rodriguez, Biology, Emphasis in Cellular and Molecular (U)

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10:35 a.m.
Investigating TWEAK-Mediated Regulation of Ovarian Cancer Cell Survival
Harshada Sapre, Cell and Molecular Biology (M)

Session E-2

Cancer Research Convergence (G) 1
Friday February 27, 2026 11:00 a.m.
Templo Mayor

11:15 a.m.
Utilization of an In vitro 3-D model to study multiple myeloma cancer stem cells
Austin Rones, Cell and Molecular Biology (M)

11:35 a.m.
Proportion of autophagy genes increase with age in mice mammary glands
Daisy Ulloa, Computational Science (D)

11:55 a.m.
Structural and Kinetic Characterization of Human Isocitrate Dehydrogenase 1
Elene Albekioni, Chemistry and Biochemistry (D)

12:15 p.m.
Parental HPV Vaccine Misperceptions Scale and Effect Modification by Child Gender
Kayla Saadeh, Public Health - Epidemiology (D)

12:35 p.m.
Impacts of Endothelial Cell Autophagy Inhibition on Tumorigenesis
Nancy Leon-Rivera, Cell and Molecular Biology (D)

Session E-3

Media in a Changing World (G) 1
Friday February 27, 2026 1:00 p.m.
Templo Mayor

1:15 p.m.
Escaping the Sunken Place: An Examination of Black Identity and Agency in Contemporary Horror Cinema
Gichuhi Kamau, Mass Communication (M)

1:35 p.m.
Presentation Withdrawn

1:55 p.m.
The migrant caravans as a critical incident for Spanish-language local television news
Maria Jose Duran Gallego, Mass Communication (M)

2:15 p.m.
Building a bad Bitch: Social Construction of Black Feminine Identity in Doechii and Flo Milli's rap
Naiima Paul, Mass Communication (M)

2:35 p.m.
Presentation Withdrawn

Session E-4

Media in a Changing World (U) 1
Friday February 27, 2026 3:00 p.m.
Templo Mayor

3:15 p.m.
The Price of Objectification: Linking the Male Gaze to Notions of "Worth" in a Capitalist Society
Ainsley Holt, Art, Emphasis in Art History, Minor in Communications (U)

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3:35 p.m.
AMC's Interview with the Vampire and Sharing Ignored Histories
Elizabeth Sternin, History (U)

3:55 p.m.
How Flooding is Drowning Out Unhoused Voices: Information Across the San Diego Riverbed
Nicholas Lindlar, Psychology (U)

4:15 p.m.
Campanile Runway: Social Media, Fashion, & Identity
Salma Facio, Communication (U)

4:35 p.m.
An Analysis of Twitter in its Post-Elon era and the Platform's Uptick in Right-Wing Sentiment
Tyler Paulo, International Security and Conflict Resolution (U)

Poster Presentations

Friday, February 27, 2026

Sessions F-I

Poster presenters are required to stand by their poster during the entire 1-hour and 40-minute presentation period.

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Friday, February 27, 2026

F Sessions : Poster Presentations

Session F-1

Biological and Agricultural Sciences (U) 1
Friday February 27, 2026 9:00 a.m.
Montezuma Hall

9:00 a.m. 1
Phage therapy in a CF patient with multi-drug resistant Achromobacter xylosoxidans infection
Adrian Ayala, Microbiology (U) & Nancy Ong (Co-presenter)

9:00 a.m. 2
Enhancing Mixotrophy in Dunaliella Salina Using Acetazolamide
Isabel Mason, Biology (U)

9:00 a.m. 3
Vibeology: Testing the sensitivity of prairie rattlesnake to substrate-borne vibrations
Isabella Calbert, Biology (U) & Gavin Henry (Co-presenter)

9:00 a.m. 4
GREENING THE GREY: THE CAPABILITY OF NOVEL COASTAL ARMOURING UNITS TO BUFFER ABIOTIC STRESSORS
Jasmine Pooni, Biology, Emphasis in Marine Biology (U) & Zainab Al-Jasim (Co-presenter)

9:00 a.m. 5
Chlorophyll Assays as Quantitative Markers of Drought Severity in 5C Hop Cultivars
Jonathan Siah, Biology (U)

9:00 a.m. 6
Understanding Economic Outputs in the Imperial Valley under Reduced Water Delivery
Katrina Rodrigues, Environmental Science (U)

9:00 a.m. 7
A comparison of substrate and strata use of Macaca maura in two human-impacted forests
Liam Walters, Environmental Sciences (U)

9:00 a.m. 8
Understanding Pancreatic cancer liver metastasis through CA19-9
Ryan Tomita, Biochemistry (U)

Session F-2

Biological and Agricultural Sciences (U) 2
Friday, February 27, 2026 9:00 a.m.
Montezuma Hall

9:00 a.m. 9
Comparing the moor macaque diet between two human-impacted forests in South Sulawesi, Indonesia
Antonio Estudillo, Environmental Sciences (U)

9:00 a.m. 10
Supplementation of Carbon Metabolites Stimulates Filamentation in Bordetella atropi
Ariadna Gomez, Microbiology (U)

9:00 a.m. 11
Effects of BSFL frass tea and UV exposure on nutrient composition of bull's blood beet microgreens
Franchesca Nicholson, Foods and Nutrition (U)

9:00 a.m. 12
From Binding to Muscle: Characterizing MEF2-Mediated Gene Regulation During Myoblast Differentiation
Jaycie Levar, Biology, Emphasis in Cell and Molecular (U)

9:00 a.m. 13
Effect of BSFL frass tea and UV light exposure on growth performance of beet microgreens
Jhadee Lynn Mendoza, Foods and Nutrition (U)

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9:00 a.m. **14**
Protein language model-based prediction of allergens in Arthrospira platensis
Liana Feng, Foods and Nutrition (U)

9:00 a.m. **15**
Discovering Secondary Phenotypes in Host Mutants that Lack Microbiome Adherence
Nicole Yarovoy, Biology (U)

9:00 a.m. **16**
The Connection Between Socioeconomic Status and Plants Grown within San Diego Community Gardens
Rachel King, Environmental Sciences (U)

Session F-3

Engineering and Computer Science (U) 1
Friday, February 27, 2026 9:00 a.m.
Montezuma Hall

9:00 a.m. **17**
Investigating post-fire water quality and harmful algal blooms in California lakes
Alexis Tran, Environmental Sciences (U)

9:00 a.m. **18**
User-Friendly Middleware for Pixhawk: Enabling Easy Drone Control with Python APIs
Eric Jay Tantay, Computer Engineering (U) & Laurel Matthews (Co-presenter)

9:00 a.m. **19**
Development of a High Current Conduction-Based Method for Foaming and Expansion of Aluminum Metal
Fraser Meagher, Mechanical Engineering (U)

9:00 a.m. **20**
Exploring Image Masking for Adaptive Intelligent SLAM
Jianna Gapuz, Applied Arts and Sciences, Computer Science (U)

9:00 a.m. **21**
3D Printing of Bioinspired Flame Retardant Structures
Julia Hong, Mechanical Engineering (U) & Alex Kownacki (Co-presenter)

9:00 a.m. **22**
Resilience of Biopolymer-Amended Regolith Under Extreme Thermal Cycling
Mercedyz Anzaldo, Astronomy (U)

9:00 a.m. **23**
Ultrasonic Characterization of Biopolymer-Amended Regolith in Extraterrestrial Infrastructure
Shezreen Khan, Aerospace Engineering (U)

9:00 a.m. **24**
Airfoil Thickness Effects on Separated Flow for Low Aspect Ratio Blades at Low Reynolds Number
Wyatt Scott, Aerospace Engineering (U) & Ethan Straw (Co-presenter)

Session F-4

Behavioral and Social Sciences (U) 1
Friday, February 27, 2026 9:00 a.m.
Montezuma Hall

9:00 a.m. **25**
Social Determinants of Health & Medication Adherence in Hispanics with DMT2 in E-Health Intervention
Ana Rodriguez, Psychology, Neuroscience Emphasis (U) & Fernando Arredondo Zepeda (Co-presenter)

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9:00 a.m. **26**
Dual Food and Housing Insecurity: Compounding Effects on Children's Mental Health
Cheney Crowe, Public Health (U)

9:00 a.m. **27**
Ventral Striatum – Mid-Insula Functional Connectivity and Social Skills in Autism Spectrum Disorder
Eleanor Chun, Psychology (U)

9:00 a.m. **28**
Word Learning in Children with Language Learning Difficulties
Halle Rodriguez, Speech, Language, and Hearing Sciences (U) & Devin Besselman-Goldes (Co-presenter)

9:00 a.m. **29**
Morphosyntax in Autistic Youth and Young Adults Varying in Language Skills
Kelsey Lam, Psychology (U)

9:00 a.m. **30**
Evaluating Environmental Justice in EPA Brownfield Grant Allocations
London Gibbs, Environmental Sciences (U)

9:00 a.m. **31**
Children's Perceptions of Socioeconomic Mobility and Inequality
Olivia Skirpstunas, Public Health (U) & Sydney Hant (Co-presenter)

9:00 a.m. **32**
Depression contributes to cognitive intra-individual variability scores in unimpaired older adults
Victoria Gutierrez, Psychology (U)

Session F-5

Behavioral and Social Sciences (U) 2
Friday, February 27, 2026 9:00 a.m.
Montezuma Hall

9:00 a.m. **33**
Resources for Parent Scholars Experiencing Housing Insecurity: Community College vs University
Angelica Duarte, Sociology (U)

9:00 a.m. **34**
Brief Behavioral Therapy Impacts Treatment Satisfaction by Improving Youth Anxiety and Functioning
Aubrey Cabigao, Psychology, Minor in Counseling and Social Change (U)

9:00 a.m. **35**
Examining the Impact of Aging and Testing Language on the Stroop Task in Deaf ASL-English Bilinguals
Caitlin Pearson, Speech, Language, and Hearing Sciences (U)

9:00 a.m. **36**
A Qualitative Analysis of the Incorporation of Research into the Classroom among STEM Faculty
Connor Silverstein, Chemistry, ACS Certification (U)

9:00 a.m. **37**
Interpersonal Predictors of Symptom Severity and Burden in Lupus
Cristina Campos, Psychology, Emphasis in Neuroscience (U)

9:00 a.m. **38**
Barriers to Licensing Autistic Drivers: Examining Indications of Pursuing Driving in STEER
Haylie Paris Caguioa, Psychology, Minor in Counseling and Social Change (U)

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9:00 a.m. 39
Thirdhand Smoke Pollution and Exposure on the San Diego Blue Line Trolley
Ileana Andrade, Psychology, Emphasis in Neuroscience (U)

9:00 a.m. 40
Life Stress as a Moderator of Irritability and Neural Reward Processing
Madelin Gredvig, Psychology, Emphasis in Neuroscience (U)

Session F-6

Engineering and Computer Science (U) 2
Friday, February 27, 2026 9:00 a.m.
Montezuma Hall

9:00 a.m. 41
RF-Based Digital Twins for Safe Robot Navigation with Reinforcement Learning
Afnan Algharbi, Computer Science (M) & Jay Mittal (Co-presenter)

9:00 a.m. 42
Visible and Barely Visible Lighting Strike Damage Assessment via Sparse Ultrasonic C-Scan
Denis Bindels, Aerospace Engineering (U) & Charles Wang (Co-presenter)

9:00 a.m. 43
Clocking In Early: Prevalence of Permissive NTP Handling in Public Wi-Fi Networks
Gerald M Wolf, Computer Science (U)

9:00 a.m. 44
Tracking sanitary sewer overflow in urban watersheds using fluorescence-based sensors
Heather Linard, Environmental Science (B.S.) (U)

9:00 a.m. 45
Spiderweb Inspired 3D Printing for High Performance Materials
Kaden Buehrig, Mechanical Engineering (U)

9:00 a.m. 46
Patient-Specific Cardiovascular Modeling to Evaluate LVAD Outflow Geometry and Stroke Risk
Kristianna Quijote, Mechanical Engineering, Emphasis in Bioengineering (U)

9:00 a.m. 47
Irrigation-driven vegetation patterns and structure loss: A case study of the 2025 Los Angeles Fires
Sabrina Guarin, Civil Engineering (U)

9:00 a.m. 48
Transcranial Ultrasound Simulation: A Comparison Between k-Wave and mSOUND
Shalayah Webb, Aerospace Engineering (U)

Session F-7

Behavioral and Social Sciences (G) 1
Friday, February 27, 2026 9:00 a.m.
Montezuma Hall

9:00 a.m. 49
Reliability and validity of the ISEL-12 scale among primarily Latino adults
Kiria Fraga, Public Health - Health Behavior (D)

9:00 a.m. 50
Voices Heard, Lessons Learned: Evaluating the Impact of What I Wish My Parents Knew
Kitiara Cox, Public Health: Health Promotion & Behavioral Science (M)

9:00 a.m. 51
Political Interventions and Health Behaviors of PWUD Experiencing Homelessness at the TJ-SD Border
Lorely Chavez, Public Health, Global Health (D)

9:00 a.m. 52
Racial Harm for Student Affairs Professionals of Color
Renz Mark Cabrera, Postsecondary Educational Leadership and Student Affairs (M)

(U) =Undergraduate; (M) = Master's; (D)=Doctoral

9:00 a.m. 53
How Social Recognition Shapes Research Interest and Career Commitment Among STEM Scholars
Robbi Melvin, Psychology (M) & Brooke Isrow (Co-presenter)

9:00 a.m. 54
Perceived COVID-19 Pandemic Impact and Mental Health in a Predominantly Hispanic/Latino Sample
Tania Valdez, Public Health (D)

9:00 a.m. 55
Discrimination and the mediating roles of perceived burdensomeness and thwarted belongingness
Tori Walters, Psychology (M)

9:00 a.m. 56
Decreased Readiness to Reduce Substance Use Among Unstably Housed Individuals With Prior Treatment
William Farris, Public Health, Health Behavior (D)

Session F-8

Behavioral and Social Sciences (U) 3
Friday, February 27, 2026 9:00 a.m.
Montezuma Hall

9:00 a.m. 57
1 in 10 College Students Screens Positive for High Autistic Traits
Christopher Whitney, Psychology, Emphasis in Neuroscience, Liberal Arts and Sciences (U) & Evelin Valadez (Co-presenter)

9:00 a.m. 58
Relationship Between Social Anxiety and Changes in Heart Rate Variability During Social Stress
Ella Born, Psychology (U)

9:00 a.m. 59
Evolving Word Meanings: A Comparative Study of Word Learning in Children and Adults
Gaby Krasny, Speech Language and Hearing Sciences (U) & Simone Caruthers (Co-presenter)

9:00 a.m. 60
The Effects of Selective Incivility on Workplace Support
Giovanni Beltran, Industrial and Organizational Psychology and Leadership Studies (U)

9:00 a.m. 61
To Se or Not to Se? An Eye-tracking Study on Inalienable Possession in Heritage Spanish Speakers
Jaime Antoshak, Linguistics (U)

9:00 a.m. 62
Examining Associations Between Prenatal Alcohol Exposure and Sex with Youth Aggression
Malia Shaghasi, Psychology (U)

9:00 a.m. 63
Effects of Prenatal Alcohol Exposure and Child Protective Services Involvement on Social Behavior
Mia Scher, Psychology (U)

9:00 a.m. 64
From Service to Scholarship: Latino Veterans' Postsecondary Educational Pathways
Ricardo Rosas Jr., History (U)

Session F-9

Behavioral and Social Sciences (G) 2
Friday, February 27, 2026 9:00 a.m.
Montezuma Hall

9:00 a.m. 65
Burnout among Filipino Nurses and White Nurses During Covid-19
Carl Pasco, Sociology (M) & Jasmine Canonizado (Co-presenter)

(U) =Undergraduate; (M) = Master's; (D)=Doctoral

9:00 a.m. **66**
Presentation Withdrawn

9:00 a.m. **67**
Presentation Withdrawn

9:00 a.m. **68**
Parents' Explanations for Upward or Downward Social Mobility
Melisa Gonzalez, Psychology (M)

9:00 a.m. **69**
Exploring Mobile Clinic and Street-Medicine Outreach Strategies using Agent-Based Modeling
Nhan Le, Big Data Analytics (M)

9:00 a.m. **70**
Mexican Fertility Trends by Urbanization and Religion
Sarah Romo, Sociology (M) & Citlalli Martinez-Cano (Co-presenter)

9:00 a.m. **71**
Presentation Withdrawn

9:00 a.m. **72**
STaR (Syntactic Trajectories across Represented Speakers)
Volha Vysotskaya, Linguistics (M) & Melanie Cott (Co-presenter)

Session F-10

Behavioral and Social Sciences (G) 3
Friday, February 27, 2026 9:00 a.m.
Montezuma Hall

9:00 a.m. **73**
Amplitude and Onset Latency of the P3 Waveform During a Visual Oddball Task
Autumn Day, Psychology (M)

9:00 a.m. **74**
Assessing Changes in Hepatitis Knowledge Following Outreach Education Sessions with APHF
Hetty Zhang, Epidemiology (M)

9:00 a.m. **75**
Indirect Effect of a Cognitive Behavioral Prevention Program on Anxiety Through Change in Depression
Katherine Torfeh, Psychology (M)

9:00 a.m. **76**
Functional connectivity of the visual word form area in autism
Meagan Ann Herrera, Psychology (M)

9:00 a.m. **77**
The Homebase Homerun
Nick Martin, Community Based-Block (CBB) Counseling (M)

9:00 a.m. **78**
Presentation Withdrawn

9:00 a.m. **79**
Short- and Long-Term Associations Between Sleep Problems and Anxiety in Depressed Adolescents
Shiqi Chen, Psychology (M)

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9:00 a.m. **80**
School Mental Health Climate and Adolescent Depressive Symptoms, Suicidal Ideation, and Service Use
Vandana Padmaprakash, Psychology (M)

Session F-11

Education (U) 1
Friday, February 27, 2026 9:00 a.m.
Montezuma Hall

9:00 a.m. **81**
Intentional Instructional Design: How UX/UI Principles and Design Shape Online Learning Environments
Adelina Martinez, Computer Science (U) & Dolphin Tue Tran (Co-presenter)

9:00 a.m. **82**
Impactful Instructional Design: Student Voice Motivates Online Classroom Success
Mallory Henzel, Communication, Minor in Learning Design and Technology (U) & Dolphin Tue Tran (Co-presenter)

9:00 a.m. **83**
Learning Compassion for Transborder Students Navigating Higher Education
Brianna Brow-Rodriguez, Anthropology (U)

9:00 a.m. **84**
Learning to Teach Equitable Elementary Science: Ways to Integrate Disability Frameworks in Teaching
Ellah Fessenden, Psychology: Emphasis in Neuroscience (U) & Emerson Burton (Co-presenter)

9:00 a.m. **85**
Family Involvement in Career Pathways for First-Generation Hispanic and Latiné Students.
Giselle Hernandez, Biology, B.S. (U)

9:00 a.m. **86**
Elementary Environmental Justice Art Analyzed Through an Emotional Lens
Lana Yu, Environmental Science (U)

9:00 a.m. **87**
The Influence of Experiential Learning on Developing Transformative Elementary-Aged Student Mindset
Olivia Van Winkle, Liberal Studies: Elementary Education (U)

9:00 a.m. **88**
Writing Instruction in a GenAI Future: Research with Students
Rosabel Ibrahim, Business Administration, Information Systems (U)

Session F-12

Health Nutrition and Clinical Sciences (U/G) 1
Friday, February 27, 2026 9:00 a.m.
Montezuma Hall

9:00 a.m. **89**
Heart Rate Variability in Young Adults with Prenatal Alcohol Exposure
Ashley Nechyba, Psychology (M)

9:00 a.m. **90**
Pulmonary function responses to exercise-induced muscle damage
Carter Michnevich, Exercise Physiology (M)

9:00 a.m. **91**
Skin Carotenoids, Food Security & Program Participation in Hispanic Adults at a San Diego FQHC
Celeste Lineiro, Kinesiology (Pre-PT) (U)

9:00 a.m. **92**
Sleep and Depression Burdens Linked to Musculoskeletal Pain in Latin/Hispanic Adults With Long COVID
Isabella Perez, Interdisciplinary Studies (IS3D)-Biology, Psychology and Public Health (U) & Patrick Walker (Co-presenter)

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9:00 a.m. **93**
Single-Cell Analysis of Red Blood Cell Oxygen Kinetics Using Laser Wave-Mixing Spectroscopy
Jack McFadden-Mitchell, Chemistry (U)

9:00 a.m. **94**
Using Digit-In-Noise Tests To Reveal Hearing Loss and Cognitive Decline
Natalie Rittman, Speech, Language, Hearing Sciences (U) & Carlee Saavedra (Co-presenter)

9:00 a.m. **95**
Presentation Withdrawn

9:00 a.m. **96**
Evaluating a Continuous Glucose Monitoring Training among Primary Care Providers at a Health Center
Xitlali Ortega, Statistics with Concentration in Biostatistics (M)

Session F-13

Education (U/G) 1
Friday, February 27, 2026 9:00 a.m.
Montezuma Hall

9:00 a.m. **97**
Navigating the Practices of Supporting Elementary Students in a Rural Borderland Community: Through...
Alanis Vargas Trinidad, Teaching (Elementary Education) (M)

9:00 a.m. **98**
Presentation Withdrawn

9:00 a.m. **99**
Empowering Parents Through "The Whole-Brain Child": A Teacher-Action Research Project
Mia Herrerias, Child Development (M)

9:00 a.m. **100**
Learning with Agave: How Agave is Teaching Students about the Past
Olivia Benchetrit, Anthropology (M)

9:00 a.m. **101**
Shared Cultural Identity and Belonging Among Latino Students at SDSU
Stephania Uribe Garcia, Child and Family Development (U)

Friday, February 27, 2026

G Sessions: Poster Presentations

Session G-1

Health Nutrition and Clinical Sciences (U) 1
Friday February 27, 2026 11:00 a.m.
Montezuma Hall

11:00 a.m. **1**
Spontaneous cardiac baroreflex sensitivity in early middle-aged non-Hispanic Black and White females
Adrienne Manheimer, Kinesiology (U)

11:00 a.m. **2**
RNAi Knockdown of Zasp52 reveals direct and indirect protein interaction in Z-Discs of Drosophila
Aileen Choe, Biology (U)

11:00 a.m. **3**
Social Support and Concussion Disclosure for Historically Underrepresented Racial and Ethnic Groups
Andrea Laine, Kinesiology, Emphasis in Pre-Physical Therapy (U)

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11:00 a.m. 4
Effects of Treadmill Size on Cognitive and Walking Function
Jackson Patterson, Kinesiology, Emphasis in Pre-Physical Therapy. (U)

11:00 a.m. 5
Medical Care and Coach Impact on Concussion Disclosure in Underrepresented Racial/Ethnic Groups
Jaicie Nogosek, Kinesiology, Emphasis in Pre-Physical Therapy (U)

11:00 a.m. 6
The Relationship of Grade Point Average and Socioeconomic Status on Concussion Disclosure
Jake Abenojar, Kinesiology, Pre-Physical Therapy (U)

11:00 a.m. 7
A Qualitative Analysis of Experiences With Autism-Related Services
Katie Dunn, Biology (U) & Abigail Asare (Co-presenter)

11:00 a.m. 8
Effect of Behavioral Compensation on Speech Movements in Patients with Oropharyngeal Cancer
Sydney Coleman, Speech, Language, and Hearing Science (U)

Session G-2

Humanities, History, Literature, & Philosophy (U/G) 1
Friday February 27, 2026 11:00 a.m.
Montezuma Hall

11:00 a.m. 9
Processing Tu'un Savi from Childhood to Adulthood: Language Maintenance, Migration, and Identity
Anahi Martinez, Latin American Studies (M)

11:00 a.m. 10
The Importance of Age in United States Constitutions, 1776-1787
Andrew Wickman, History (U)

11:00 a.m. 11
Mourning Attire in the Borderlands: A Case Study from the La Mesa History Center
Cordelia Sonnenschein, Anthropology (M)

11:00 a.m. 12
SB 79 Housing Development Areas
Giancarlo Zazueta, Public Administration (U)

11:00 a.m. 13
Early LGBTQ+ Visibility on Broadcast Television
Haley McGuckin, Television, Film, and New Media: Critical Studies (U)

11:00 a.m. 14
The Forgotten First Amendment-The Apportionment Amendment
Isabella Torcat, History, Minor in Political Science (U)

11:00 a.m. 15
Cartolandia: Can Archaeology Provide a New Hope to Displaced Communities?
Victor Lopez, Anthropology (M)

11:00 a.m. 16
After the Peak: Outcomes of Gen Z Social Movements in South Asia
Zelem Tuguldur, Comparative International Studies (U)

Session G-3

Media in a Changing World (G)
Friday February 27, 2026 11:00 a.m.
Montezuma Hall

11:00 a.m. 17
Presentation Withdrawn

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11:00 a.m. 18
Can Personalized Advertisements Tell Who You Are?
Belen Herrera, Mass Communication (M)

11:00 a.m. 19
Olfactory New Media Art and Epistemic Sovereignty: Sensing, Relation, and Resistance (2000–2025)
Mary Gowen, Fine Arts (M)

11:00 a.m. 20
Presentation Withdrawn

11:00 a.m. 21
Con Artist: The Cultural Performance of Cosplay
Nicholas Nguyen, Anthropology (M)

11:00 a.m. 22
Virtual Reality in Multilingual Education: A Path to Global Awareness and Bias Reduction
Mayerling Ovalles, Dual Language Education (M)

Session G-4

Biological and Agricultural Sciences (G) 1
Friday February 27, 2026 11:00 a.m.
Montezuma Hall

11:00 a.m. 25
Effects of S – (1,2- dichlorovinyl)- L – cysteine (DCVC) exposure on mitochondrial respiration in B...
Ance Trapse, Public Health, Environmental Health (M)

11:00 a.m. 26
Investigating the Role of IDH2 K112 in Catalysis
Darius Hyde, Chemistry (M)

11:00 a.m. 27
Phage counter-defense through genome modification with 7-deazaguanines
Esteban Emmanuel Mora, Biochemistry (M)

11:00 a.m. 28
Citra 13.7% AA Hop Pellet α- and β-acids Analysis Using Reverse Phase HPLC
Jacob Pascua, Food Science (M) & Natalie Yu (Co-presenter)

11:00 a.m. 29
Engineering bacterial contractile injection systems for targeted molecular delivery
Morgan Laskowski, Cell and Molecular Biology (M)

11:00 a.m. 30
How Does Species Richness in Transplanting Affect Coastal Sage Scrub Restoration Success?
Sara Wifall, Biology Ecology (M)

11:00 a.m. 31
The role of cancer cell-derived TWEAK in promoting a cancer stem-like phenotype in ovarian cancer
Steffy Mathew, Molecular Biology (M)

11:00 a.m. 32
Phages Targeting Mycobacterium tuberculosis Across Physiological Niches
Wyman Chan, Molecular Biology (M)

Session G-5

Biological and Agricultural Sciences (G) 2
Friday February 27, 2026 11:00 a.m.
Montezuma Hall

11:00 a.m. 33
Innovative Approaches to Investigate the role of IDH1 in Peroxisomal Lipid Metabolism
Brittany Conley, Chemistry (D)

11:00 a.m. 34
Do different Melilotus removal strategies impact native plant performance via microbial effects?
Eva Bednard, Biology (M)

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11:00 a.m. 35
Pyroptosis contributes to Ect1 cell damage and microenvironment change during T. vaginalis infection
Johann Tailor, Cell and Molecular Biology (D)

11:00 a.m. 36
Defining The Role Of Extradenticle In Adult Muscle Fiber Specification In Drosophila melanogaster
Melanie Torres Ibarra, Biology, Concentration in Molecular Biology (M)

11:00 a.m. 37
Optimizing SourceTracker Accuracy Through Clustering Methods on Pure and Contaminated Source Samples
Natalia Contreras, Bioinformatics and Medical Informatics (M)

11:00 a.m. 38
Investigating Phylogeny and Speciation in North American Arbutus
Raymond Stanley, Evolutionary Biology (D)

11:00 a.m. 39
Feeding behavior and tradeoffs of California spiny lobster (Panulirus interruptus)
Shoshana Lescht-Smith, Ecology (M)

11:00 a.m. 40
Investigating evolutionary trends in disjunct populations of a white tree oak, Quercus oblongifolia
Sjana Carter, Evolutionary Biology (D)

Session G-6

Media in a Changing World (U)
Friday February 27, 2026 11:00 a.m.
Montezuma Hall

11:00 a.m. 41
Russian Hybrid Warfare: How Russian Strategies Evolve Across Georgia and Ukraine
Benson Pham, Political Science (U) & Parker Allard (Co-presenter)

11:00 a.m. 42
Empowering Mathematical Reasoning through Transnational Mentoring Sessions
Carolina Flores, Single Subject Teaching Credential for Math (U)

11:00 a.m. 43
Bases, Borders, and Backlash: The Dodgers and Latinx/e Activism Online
Esmeralda Hernandez Cardenas, Journalism, Emphasis in Public Relations (U)

11:00 a.m. 44
From Discrimination to Disinhibition: The Role of Social Connectedness
Maya Rahav, Psychology, Emphasis in Neuroscience (U) & Maya Jackson (Co-Presenter)

11:00 a.m. 45
Testimonios del Colibrí
Victor Hernandez- Bustos, Business Marketing, Minor in Chicano/a Studies (U)

11:00 a.m. Exhibit Location: Exhibitor B
War Stories I Never Heard
Todd Bradley, Art History (U)

Session G-7

Behavioral and Social Sciences (G) 4
Friday February 27, 2026 11:00 a.m.
Montezuma Hall

11:00 a.m. 49
Presentation Withdrawn

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11:00 a.m. 50
Understanding Student Utilization of Wellness Services
Brittney Ayala, Public Health - Health Promotion and Behavioral Sciences (M)

11:00 a.m. 51
A Systematic Review: Prenatal Opioid Exposure and Long-term Effects
Elizabeth Gately, Child Development (M)

11:00 a.m. 52
Non-Intrusive Survey of Archaeological Burials Using Ground-Penetrating Radar
Jesse Horsley, Anthropology (M)

11:00 a.m. 53
Identifying the Need for Updates to Bilingual Aphasia Assessment Tools
Jessica Jones, Speech, Language, and Hearing Sciences (M) & Andrea Galvez-Mcdonough (Co-presenter)

11:00 a.m. 54
Effects of Prenatal CBD Exposure on the Stress Response
Julia Steinberg, Psychology (M)

11:00 a.m. 55
Characterizing Culture in Early Language Development: The Role of Family Structure
Nycherie Hong, Psychology (M)

11:00 a.m. 56
The Reliability of the N2pc As An Index of Attention to Threat in the Dot-Probe Task
Sidney Horne, Psychology (M)

11:00 a.m. 57
SCHED+: Analyzing Policy Stability in RL-based CPU Scheduling for Autonomous Vehicles
Changhoon Sung, Computer Science (M)

11:00 a.m. 58
Presentation Withdrawn

11:00 a.m. 59
INTARG: Informed Real-Time Adversarial Attack Generation for Time-Series Regression
Gamze Kirman Tokgoz, Computer Engineering (M)

11:00 a.m. 60
Beyond Vision: Audio-Augmented CBFs for Autonomous Navigation on Construction Sites
Johannes Mootz, Mechanical and Aerospace Engineering (D)

11:00 a.m. 61
Data-driven Probabilistic Trajectory Learning with High Temporal Resolution in Terminal Airspace
Jun Xiang, Aerospace Engineering (D)

11:00 a.m. 62
Lightweight UAV-Borne 3D Perception via Pan-Tilt 2D LiDAR
Larry Garcia, Electrical & Computer Engineering (M)

11:00 a.m. 63
Attitude-Aware Autoregressive Prediction of Drone State Space
Xuewei Chen, Mechanical Aerospace Engineering (D)

11:00 a.m. 64
Localized Cyberattack Detection for Distributed Energy Resources
Lars Bjorndal, Computer Engineering (D)

Session G-8

AI & Robotics in Autonomy (G) 1
Friday February 27, 2026 11:00 a.m.
Montezuma Hall

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Session G-9

AI & Robotics in Autonomy (U/G) 1
Friday February 27, 2026 11:00 a.m.
Montezuma Hall

11:00 a.m. 65
Bootstrapped LLM Semantics for Context-Aware Path Planning
Behrad Beheshti, Aerospace Engineering (U)

11:00 a.m. 66
PRINCE: Predictable Inference Latency using CUDA Green Contexts
Alyssa Serrano, Computer Science (M)

11:00 a.m. 67
Presentation Withdrawn

11:00 a.m. 68
Presentation Withdrawn

11:00 a.m. 69
Presentation Withdrawn

11:00 a.m. 70
SDSU's First Fin-Controlled Rocket
Jeffery Schroeder, Aerospace Engineering (U) & Jared Maestri (Co-presenter)

11:00 a.m. 71
Know Your Author: Does the AI Penalty Hold in Short Fiction?
Joselyn Cesare, Psychology & Criminal Justice (U)

Session G-10

Behavioral and Social Sciences (U) 4
Friday February 27, 2026 11:00 a.m.
Montezuma Hall

11:00 a.m. 73
Voices from the Delta: Cucapá Water Perceptions, Water Justice, and Binational Conflicts.
Alissa Martens, Public Health (U)

11:00 a.m. 74
Examining Perspectives on using Digital Apps for Anxiety
Breeanna Castillo, Psychology, Emphasis in Neuroscience, Counseling and Social Change Minor (U)

11:00 a.m. 75
Imperial Valley Suicide Prevention
Brenda Garavito, Psychology, Minor in Social Work (U)

11:00 a.m. 76
Inclusive Education for Children and Adolescents with Autism
Brianna Frazier, Liberal Studies (U)

11:00 a.m. 77
Beyond Barriers: Culture-Specific Beliefs and Cancer Care at the U.S.-Mexico Border
Maria-Elena Gil, Psychology, Minor in Public Administration (U) & Cathrina Espinoza (Co-presenter)

11:00 a.m. 78
Temporal and Regional Trends in Anti-Asian American Bias in a Changing Socio-Political Context
Nicole Leong, Psychology (U) & Grace Cho (Co-presenter)

11:00 a.m. 79
Climate Change at the Borderlands: Cucapá Voices on Heat, Water, and Health
Nirvana Encinas, Public Health, Emphasis in Environmental Health (U)

11:00 a.m. 80
How does the lack of public bathroom access in Imperial County affect our daily lives?
Sergio Olivas Coto, Public Administration (U)

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Session G-11

Physical and Mathematical Sciences (G) 1
Friday February 27, 2026 11:00 a.m.
Montezuma Hall

11:00 a.m. 81
Presentation Withdrawn

11:00 a.m. 82
Linking Climate and Physical Landscape Characteristics to Dominant Hydrologic Processes
Ava Lessing, Geography, Concentration in GIScience (M)

11:00 a.m. 83
Modeling Climate Impacts on Avian Influenza Evolution and Consequent Epidemic Risk in Waterfowl
Laura Hu, Applied Mathematics (M)

11:00 a.m. 84
Modeling Climate-Driven Risk of Mosquito-Borne Disease: District-Level Assessment of Dengue in Nepal
Olympe Genty, Applied Mathematics (M)

11:00 a.m. 85
The Role of Headwater Catchments in Downstream Flow Regimes
Paola Sabel, Geography, Concentration in Watershed Science (M)

11:00 a.m. 86
Growth mechanism of silver nanoparticles in the borohydride reduction of silver ions
Tatyana D'Alessandro, Chemistry (M)

11:00 a.m. 87
Modeling HIV Latent Infection during ART Treatment of Drugs Abusers
Timmy Liang, Applied Mathematics Dynamical Systems and Chaos (M)

11:00 a.m. 88
Electrocatalytic CO2 Reduction with CISS-Influenced Single Atom Catalysts
Tytan Le Nguyen, Chemistry (M)

Session G-12

Physical and Mathematical Sciences (U/G) 1
Friday February 27, 2026 11:00 a.m.
Montezuma Hall

11:00 a.m. 89
UV-Exposure Effects on Time-Resolved Fluorescence of Crude Oil Samples
Alekhya Nagulapally, Physics (M)

11:00 a.m. 90
Exploring 1,2,3-Oxadiazine Ring Formation as a Strategy Towards the Total Synthesis of Nocuolin A
David Zhai, Chemistry, ACS certificate (U)

11:00 a.m. 91
1,4-addition of a vinyl potassium trifluoroborate to a vinyl ketone substrate
Davina Ortiz Cobian, Biochemistry/Chemistry (M) & Francisco Serrano Sotelo (Co-presenter)

11:00 a.m. 92
Evaluating and Improving Wet Bulb Globe Temperature Forecast Accuracy in the Imperial Valley
Fernanda Portillo, Geography (M)

11:00 a.m. 93
Utilization of a Zwitterionic Capillary Coating for the Characterization of Virus-like Particles
Kyle Arnold-Haro, Chemistry (M)

11:00 a.m. 94
Ni-Doped Perovskite for Photocatalytic Benzylic C-H Amination
Nhu Dang, Chemistry (D)

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11:00 a.m. **95**
Backbone and Warhead Optimization of Carmaphycin Analogs for Antitrichomonal Therapy
Rafael Aguilera, Chemistry (M) & David Macaraig (Co-presenter)

11:00 a.m. **96**
A path to N-arylimidazoles via Chan-Lam cross-coupling and high throughput experimentation
Stephanie Lambert, Chemistry (D) & Dakota Mcmichael (Co-presenter)

Session G-13

Sage Project Partnerships (U/G) 1
Friday February 27, 2026 11:00 a.m.
Montezuma Hall

11:00 a.m. **97**
The Right to Relief? Exploring Community Attitudes Toward Public Restroom Expansion in San Diego
Abigail Wan, Public Health (U) & Isamira Slewa (Co-presenter)

11:00 a.m. **98**
A National City Community Needs Assessment on Earthquake Preparedness
Bryan Gonzalez Esparza, Sociology (U)

11:00 a.m. **99**
Presentation Withdrawn

11:00 a.m. **100**
Presentation Withdrawn

11:00 a.m. **101**
Trauma, Mental Health, and the 'Revolving Door' in Homeless Shelters
Josefina Perales, Social Work (M)

11:00 a.m. **102**
The City of National City Hazards Preparedness and Mitigation Plan
Madison Cranford, City Planning (M)

11:00 a.m. **103**
The National City Earthquake Safety & Outreach Initiative
Nicholas Foulk, Advanced Certificate in Public Policy (M)

11:00 a.m. **104**
Presentation Withdrawn

Friday, February 27, 2026

H Sessions: Poster Presentations

Session H-1

Health Nutrition and Clinical Sciences (U) 2
Friday February 27, 2026 1:00 p.m.
Montezuma Hall

1:00 p.m. **1**
Presentation Withdrawn

1:00 p.m. **2**
Intervention Fidelity: Assessing Implementation Among Pre-professional Interventionists
Alexis Camejo, Speech, Language, Hearing Sciences (U) & Allyx Faretta (Co-presenter)

1:00 p.m. **3**
Understanding the Role of a Novel Gene in Parkinson's Disease Through Stem Cell-Based Modeling
Ben Etheridge, Chemistry, Emphasis in Biochemistry (U)

1:00 p.m. **4**
Knowledge, Attitudes, and Barriers Toward HPV Vaccination in the Cucapá Community
Christine Valadez, Public Health, Emphasis in Environmental Health (U)

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1:00 p.m. 5
Muscle recovery from lengthening contractions is impaired in mice with lung-specific TNFa expression
Eli Whitman, Kinesiology Pre-Physical Therapy (U)

1:00 p.m. 6
Lived experiences of Chinese-speaking individuals with aphasia: implications for clinical practice
Emily Zhang, Speech, Language, and Hearing Sciences (U) & Abigail Butler (Co-presenter)

1:00 p.m. 7
Examining sports participation among rural youth: A national survey
Kamlyn Huang, Kinesiology (U) & Alyssa Prado (Co-presenter)

1:00 p.m. 8
Executive function in children with reading disorders: Insights from an intensive language program
Lauren Turner, Speech, Language, and Hearing Sciences (U) & Madelaine Torgerson (Co-presenter)

Session H-2

Health Nutrition and Clinical Sciences (U) 3
Friday February 27, 2026 1:00 p.m.
Montezuma Hall

1:00 p.m. 9
Rehabilitative Adaptations to Unloading Knee Braces in Individuals With a Recent ACL Reconstruction
Aalok Gokarn, Kinesiology Pre-Physical Therapy (U)

1:00 p.m. 10
Building Better Stories: Evaluating an Intensive Narrative Intervention for School-age Writers
Alissa Kashat, Child Development (U) & Paige Wellman (Co-presenter)

1:00 p.m. 11
Gait, Kinematic & Muscle Adaptations to Unloading Knee Braces in Knee OA Patients
Amanda Williams, Kinesiology Pre-Physical Therapy (U)

1:00 p.m. 12
Effects of Fresh Mango Consumption on Postprandial GI Comfort, Anxiety, Glucose, and Skin Hydration
Ashley Woo, Foods and Nutrition (U)

1:00 p.m. 13
The Influence of Dietary Non-Caloric Sweeteners on Traumatic Brain Injury in the Adult Drosophila.
Celine Thomassian, Biology (U) & Sydney Mudrak (Co-presenter)

1:00 p.m. 14
Investigating β3-Dependent Stress Induced Regulation of Metabolism in Ovarian Cancer Stem-Like Cells
Dishant Vandra, Kinesiology (U)

1:00 p.m. 15
Downhill running-induced muscle damage alters the power-velocity relationship at high speeds
Shawn Wong, Kinesiology (U) & Nicholas Cayado (Co-presenter)

1:00 p.m. 16
Using ADA Guidelines to audit and grade public restroom accessibility and usability
Isabel Gutierrez, Psychology (U) & Zissi Winkler (Co-presenter)

Session H-3

Cancer Research Convergence (U) 1
Friday February 27, 2026 1:00 p.m.
Montezuma Hall

1:00 p.m. 17
Onvansertib-Mediated PLK1 Inhibition Reduces Viability and Growth in Neuroblastoma Cells
Aileen Yasukochi, Biology, Emphasis in Cellular and Molecular Biology (U)

(U) =Undergraduate; (M) = Master's; (D)=Doctoral

1:00 p.m. 18
County-Level Healthcare Disparities and Melanoma Incidence in Imperial & San Diego Counties
Alvaro Medina Perez, Public Health, Emphasis in Environmental Health (U)

1:00 p.m. 19
Successive Rounds of Chemotherapy Alters Notch Ligand and Receptor Expression in Ovarian Cancer
Daniela Cazares, Public Health (U)

1:00 p.m. 20
Assessing Tumor Bed and Dosage During Accelerated Partial Breast Irradiation (APBI) Treatment
Ezinne Igwe, Public Health (U)

1:00 p.m. 21
RNA Editing ADAR1 Deaminase and APOBEC3 Responsive (READAR)
Fabyana Zora, Biology (U)

1:00 p.m. 22
Exploring a Critical Regulatory Domain with Distinct Structural Features in Human IDH Enzymes
Isabella Alves, Cellular and Molecular Biology (U)

1:00 p.m. 23
Mandated Pharmacy Benefit Insurance Coverage for Medically-Indicated Fertility Preservation
Nia Palmer, Kinesiology (U)

1:00 p.m. 24
Testing Endocrine Therapy on TS/A Cells to Utilize Syngeneic Models of ER+ Breast Cancer
Shams Kala, Biology (U)

Session H-4

Behavioral and Social Sciences (U) 5
Friday February 27, 2026 1:00 p.m.
Montezuma Hall

1:00 p.m. 25
Interview With the Bilingual: Building a Corpus of the Spanish Language in the San Diego Area
Amaris Cruz, Psychology (U)

1:00 p.m. 26
Presentation Withdrawn

1:00 p.m. 27
Speech Errors in Adults with Temporal Lobe Epilepsy
Dakota Melton, Speech, Language, and Hearing Sciences (U)

1:00 p.m. 28
Links between antipsychotic use, hallucinations and dementia family history on late-life cognition
Fernanda Cuevas Alviar, Psychology (U) & Marco Santoscoy (Co-presenter)

1:00 p.m. 29
Food for Thought: Sociodemographic Characteristics and Food Insecurity
Howard Frymire, Social Work (U)

1:00 p.m. 30
How do Spanish-English bilinguals resolve between- and within-language interference when they speak?
Valerie Ibarra, Speech, Language, and Hearing Sciences (U)

1:00 p.m. 31
Effects of Word Class and Difficulty on the Spanish Web-Based Computerized Comprehension Task
William Reyes, Psychology (U)

1:00 p.m. 32
How Lexical Properties Shape Phonological Conflict: Evidence From a Tongue Twister Paradigm
Zoe Evangeline Idea, Speech, Language, and Hearing Sciences (U) & Natalie Rittman (Co-presenter)

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Session H-5

Behavioral and Social Sciences (U) 6
Friday February 27, 2026 1:00 p.m.
Montezuma Hall

1:00 p.m. 33
Associations between sexual violence and suicidality among sexual minority and heterosexual youth
Amanda Thibodeau, Applied Psychology (U) & Nathalia Oliveira Wittlin (Co-presenter)

1:00 p.m. 34
Cultural Influences on Word Production in Mandarin-English Bilingual Elders
Angelina Lee, Speech, Language, and Hearing Sciences (U) & Tobia Kuhlmeier (Co-presenter)

1:00 p.m. 35
Clearing the Air: Developing an Adaptive Intervention To Decrease Smoking in LGBTQ+ Adolescents
Arianna Dowlatshahi, Public Health (U)

1:00 p.m. 36
Language does not modify the relationships between brain injury and cognition among Latino adults
Ashlyn Teran, Psychology, Emphasis in Neuroscience (U)

1:00 p.m. 37
Effects of Prenatal Nicotine E-Cigarette Exposure on Cytokines in the Developing Lung
Fernanda Guereca Ruiz, Psychology (U)

1:00 p.m. 38
Evaluating Concussion Protocols and Awareness in Collegiate Field Hockey and Lacrosse Athletes
Grace Mantek, Psychology, Emphasis in Neuroscience (U)

1:00 p.m. 39
Early Vocabulary Size, Spatial and Number Vocabulary, and Number Word Comprehension
Steven Yu, Psychology (U) & Diana Martinez (Co-presenter)

1:00 p.m. 40
Associations between hypercholesterolemia with executive functioning among Hispanic/Latino Adults
Tiara Simonton, Psychology (U)

Session H-6

Cancer Research Convergence (U/G) 1
Friday February 27, 2026 11:00 a.m.
Montezuma Hall

1:00 p.m. 41
Kinetic Characterization of Cancer-Associated Mutants of Isocitrate dehydrogenase 2
Aaron Le, Chemistry (M)

1:00 p.m. 42
Identifying Sensitivity and Resistance Pathways to TEAD Inhibition in Head and Neck Cancer
Hannah Broyles, Chemistry, Emphasis in Biology (Biochemistry) (U)

1:00 p.m. 43
IDH1 α-10 helix structural characterization using HDX-MS
Josselyn Jacobo, Chemistry (M)

1:00 p.m. 44
Understanding how mutant IDH1 impacts lipid metabolism.
Katelyn Yunker, Chemistry (D)

1:00 p.m. 45
Synthesis and Evaluation of AdSS Bisubstrate Inhibitors
Garret Thomason (Co-Presenter) & Reagan Yee (Co-presenter)

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1:00 p.m. **46**
IDs regulate IL-6 and cancer stem-like cell features following chemotherapy in ovarian cancer
Megan Keene, Cell and Molecular Biology (D)

1:00 p.m. **47**
Structural characterization of WT IDH2 and insights into acetylation-dependency on catalysis
Nino Mamasakhlisi, Biochemistry (D)

1:00 p.m. **48**
Preliminary Study of a Cavity-Backed Pentagon-Shaped UWB Textile Antenna for Brain Tumor Detection
Penelope Romero Pimentel, Electrical Engineering (U)

Session H-7

Biological and Agricultural Sciences (U) 3
Friday February 27, 2026 1:00 p.m.
Montezuma Hall

1:00 p.m. **49**
Characterizing MLH1 Mutation & HER2 Expression in Endocrine-Resistant Breast Cancer
Adryan Aquino, Kinesiology (Pre-Med) (U)

1:00 p.m. **50**
Impact of Fish Presence on Trophic Cascade in Eelgrass (Zostera Marina) Habitat
Carina Cruz, Marine Biology (U)

1:00 p.m. **51**
Plasmid-Encoded Mechanisms of Bacterial Adherence in the Caenorhabditis elegans gut
Catherine Reyes, Microbiology (U)

1:00 p.m. **52**
Vegetation response and burn severity dynamics in repeatedly burned southern California watersheds
Diya Vats, Computer Science (U)

1:00 p.m. **53**
Presentation Withdrawn

1:00 p.m. **54**
Functional and Structural Analysis of sHSP23 Overexpression in a Drosophila Model of IBM-3
Rebecca Blum, Biology (U)

1:00 p.m. **55**
Chemotherapy-modulated Fibroblast-Derived Extracellular Matrices as a Model to Study Ovarian Cancer
Vayda Foy, Biology (U) & Barret Jones (Co-presenter)

1:00 p.m. **56**
Genomics of drought tolerance in domesticated hops (Humulus lupulus L.)
Zoe Glynn, Microbiology, Emphasis in Clinical Laboratory Studies (U)

Session H-8

Biological and Agricultural Sciences (G) 3
Friday February 27, 2026 1:00 p.m.
Montezuma Hall

1:00 p.m. **57**
Cryptic Prophages: The Gifts that Keep on Giving
Ben Caulfield, Bioinformatics & Medical Informatics (M)

1:00 p.m. **58**
Profiling the Novel Impacts of two Organochlorine Contaminants on Human Placental Cells
Gabriel Romo, Environmental Health Sciences (M)

1:00 p.m. **59**
Morphological and Genomic Signatures of Urban Adaptation in Native San Diego Rodent Populations
Jackson Wolfe, Biology (M)

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1:00 p.m. 60
Light Sheet Microscopy of Neural Crest Cells in Mouse Embryonic Development
Kendy Arana, Public Health, Latin American Studies (M)

1:00 p.m. 61
Presentation Withdrawn

1:00 p.m. 62
Structural dynamics of casein isoforms in water
Rabiul Alam Roni, Food Science (M)

1:00 p.m. 63
Identifying Phage Host Factors in Achromobacter xylosoxidans to Improve Phage Therapy
Romi Levin, Microbiology (M) & Hamza Hajama (Co-presenter)

1:00 p.m. 64
Mapping Brazilian Crop Intensity with Machine Learning Techniques and Remote Sensing Data
Sirena Rodriguez, Geography with a concentration in Geographic Information Science Major (M) & Violet Navarrete (Co-presenter)

Session H-9

Behavioral and Social Sciences (G) 5
Friday February 27, 2026 1:00 p.m.
Montezuma Hall

1:00 p.m. 65
The Complexity of Food Environments: A Multi-Level GIS Analysis of Inequities in Food Access
Charlie Kanelopoulos, City Planning (M)

1:00 p.m. 66
Presentation Withdrawn

1:00 p.m. 67
Cognitive Control of Motor Output in Individuals at Clinical High-Risk for Psychosis
Emily Long, Psychology (M)

1:00 p.m. 68
Unhoused in San Diego, California: Results from the 2025 SDHeart Surveys
Olivia Pugsley, Public Health - Epidemiology (M) & Jillian O'Keeffe (Co-presenter)

1:00 p.m. 69
The P3b in Response to Auditory Oddball Stimuli in Individuals at Clinical High Risk for Psychosis
Sierra Suelzle, Psychology (M)

1:00 p.m. 70
Examining the Social Impact of Environmental Solutions
Steven Saldivar, Geography (M)

1:00 p.m. 71
Supporting Smiles: Oral Health & Social Support Study
Tharshana Prakash, Public Health: Health Promotion and Behavioral Science (M)

1:00 p.m. 72
THE IMPACT OF MEDIA ON GROWING OPPOSITION TO IMMIGRATION AMONG U.S. LATINOS
Xavier Flores, Political Science (M)

Session H-10

Biological and Agricultural Sciences (U) 4
Friday February 27, 2026 1:00 p.m.
Montezuma Hall

1:00 p.m. 73
Effects of ocean acidification and trophic cascade on Zostera marina physiology
Elissa Martin, Biology, Emphasis in Zoology (U)

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1:00 p.m. **74**
Growth Performance and Nutrient Composition of Black Soldier Fly Larvae Reared on Diverse Food Waste
Jazlyn Piera, Environmental Science (U)

1:00 p.m. **75**
Gold Nanoparticle and Rare Earth Element Binding Protein Bioconjugation to Analyze Binding Identity
Katrina Ferrer, Chemistry, Emphasis in Biochemistry (U) & Connor Goss (Co-presenter)

1:00 p.m. **76**
The Language of Leaves: Assessing Humulus lupulus Cultivar Sensitivity to Water Stress in San Diego
Mani Golshani, Biology (U)

1:00 p.m. **77**
Engineering Sustainable Biomaterials Utilizing Praying Mantis Proteins and Cellulosic Waste Streams
Mariana Rayburn, Chemistry with Emphasis in Biochemistry (U) & Melody Alavi (Co-presenter)

1:00 p.m. **78**
Physiological Response of Mytilus galloprovincialis to Estuary Water Quality Changes
Neenah Mendez, Biology, Emphasis in Marine Biology (U)

1:00 p.m. **79**
Effects of chronic cigarette smoke exposure on diaphragm force and myofiber cross-sectional area aft...
Samuel Curiel, Biology (U)

1:00 p.m. **80**
Identification of Novel Drosophila Proteins, Uchmaz and Zspo, and Their Roles in Muscle Assembly
Yiannis Alvarado, Cellular Molecular Biology (U)

Session H-11

Physical and Mathematical Sciences (U) 1
Friday, February 27, 2026 1:00 p.m.
Montezuma Hall

1:00 p.m. **81**
Advancing Green Hydrogen Circularity via Biomass-Derived Intermediates on Transition-Metal Catalysts
Brian Yang, N/A (High School - Working with SDSU Faculty)

1:00 p.m. **82**
Nontargeted Chemical Analysis of Tijuana River Sediment to Assess Environmental Pollutants
Darragh Howard, Kinesiology, Emphasis in Prephysical Therapy (U)

1:00 p.m. **83**
Assessing DFT-based predictions of redox potentials for electrochemical trifluoromethylation reagent
Gabriel Deleon, Chemistry, Emphasis in Biochemistry (U)

1:00 p.m. **84**
Assessment of Theoretical Methods for Accurate Prediction of Rotational Barrier Between Atropisomers
Jae Yoon Lee, Chemistry, Emphasis in Biochemistry (U)

1:00 p.m. **85**
Method for estimating the basic reproduction number of vector-borne diseases
Jayna Snyder, Statistics (Data Science) (U)

1:00 p.m. **86**
Fast Heterogeneous Catalysis Using Perovskite Nanocrystals for Hydrocarbon Aromatization
Jericho Reyes, Chemistry, Emphasis in Biochemistry (U)

1:00 p.m. **87**
Enhancing Photocatalytic CO_2 Reduction Efficiency Using Chiral-Modified CdS Through the CISS Effect
Marlene Galke, Cellular Molecular Biology (U) & Edgar Castillo (Co-presenter)

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1:00 p.m. **88**
Ultrasensitive Detection of Nanoplastics Using Laser Wave-Mixing Spectroscopy
Mia Chalfin, Chemistry (U)

Session H-12

Physical and Mathematical Sciences (U) 2
Friday February 27, 2026 1:00 p.m.
Montezuma Hall

1:00 p.m. **89**
Trace Metal Effects in Photochemical Synthesis of Silver Nanoparticles
Carmen Devine, Chemistry (U)

1:00 p.m. **90**
Tire and tobacco waste-derived chemical pollutants in sunlight exposed aquatic environments
Jaume Toomer, Environmental Engineering (U)

1:00 p.m. **91**
Presentation Withdrawn

1:00 p.m. **92**
Presentation Withdrawn

1:00 p.m. **93**
Deracemization of Atropisomeric Biaryl and Heteroaryl scaffolds to Access the Axial Chiral Quinoline
Oscar Cabrera, Chemistry (U)

1:00 p.m. **94**
Virus like Particle assembly of hypothetical coat proteins sourced from environmental RNA sequencing
Skylar Gibson, Microbiology (U) & Connor Schiveley (Co-presenter)

1:00 p.m. **95**
Presentation Withdrawn

1:00 p.m. **96**
Production of Metal-binding Fibers using Proteins Engineered to Bind Rare Earth Elements
Yousif Elia, Biochemistry (U) & Armando Corona (Co-presenter)

Session H-13

Biological and Agricultural Sciences (U/G) 1
Friday February 27, 2026 1:00 p.m.
Montezuma Hall

1:00 p.m. **97**
Telomere Dynamics as Biomarkers of Aging and Health in the South African Penguins
Ciera Garcia, Evolutionary Biology (M)

1:00 p.m. **98**
Comparison of Crotalus Ruber Rattle Morphology Throughout the History of San Diego County
Elisa Paider, Biology (U)

1:00 p.m. **99**
Occupation-associated Epigenetic Age Acceleration among U.S. Hispanic/Latino Adults
Juan Cruz, Public Health Epidemiology (M)

1:00 p.m. **100**
Leveraging Bacterial Surface Display for the Synthesis of Spider Silk Fibers
Mariam Slewa, Biology, Emphasis in Cellular and Molecular Biology (U)

1:00 p.m. **101**
Microbiome dynamics across food wastes and resulting black soldier fly larvae frass
Mena Essa, Environmental Science (U)

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1:00 p.m. **102**
Loss of PIDDosome Signaling Causes Age-Dependent Cardiac Dysfunction
Rana Yousif, Biology (U)

1:00 p.m. **103**
Examining Drought Resistance in Gene Edited Soybeans Using Stable Carbon and Nitrogen Isotopes
Ranya Tobin, Environmental Science (U)

1:00 p.m. **104**
Socioeconomic patterns of high contamination risk crop elections in San Diego community gardens.
Yohann Chheng, Environmental Science (U)

Friday, February 27, 2026

I Sessions: Poster Presentations

Session I-1

Behavioral and Social Sciences (U) 7
Friday February 27, 2026 3:00 p.m.
Montezuma Hall

3:00 p.m. **1**
Smoking and Vaping Policies in Newly Constructed, State-Funded Multiunit Housing in California.
Amanda Ta, Psychology (U)

3:00 p.m. **2**
Patterns of Nonconcussive Repetitive Head Impacts in Competitive Youth Soccer Games
Anthony Nevarez, Psychology (U)

3:00 p.m. **3**
Preliminary Feasibility of a Prenatal Yoga App Intervention for African American Pregnant Women
Caitlyn Cu, Kinesiology (U) & Lauren Gatdula (Co-presenter)

3:00 p.m. **4**
Sex- and Dose- Dependent Effects of Prenatal CBD Exposure on Spatial Learning and Memory Performance
Georgia Brewster, Psychology, Emphasis in Neuroscience (U)

3:00 p.m. **5**
Beyond the Border: Immigration Enforcement and the Criminalization of Latina Motherhood
Isabel Zelaya, Political Science (U)

3:00 p.m. **6**
Wearable Technology for Capturing Communication Stress in Children: Preliminary Empatica & LENA Data
Jocelyn Garcilazo, Speech, Language, and Hearing Science; Psychology (U) & Jennifer Holbea (Co-presenter)

3:00 p.m. **7**
An ERP Study of the Effects of Gender Stereotype in Spanish/English Bilinguals
Maria Huerta-Avila, Psychology, Emphasis in Neuroscience (U)

3:00 p.m. **8**
Challenging Racial Bias in California Courts: Early Applications of the Racial Justice Act
Shruti More, Criminal Justice and Criminology (M)

Session I-2

Business, Economics & Public Administration (U/G) 1
Friday February 27, 2026 3:00 p.m.
Montezuma Hall

3:00 p.m. **9**
Presentation Withdrawn

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3:00 p.m. **10**
Tax Year 2025 vs Tax Year 2026 Form 1040: Taxpayer-Facing Changes Under H.R. 1 (Pub. L. 119-21)
Ayoob Abed, Individual Taxation/Advanced Individual Taxation (M)

3:00 p.m. **11**
Healthcare Professionals' Knowledge, Experience, & Intentions to Use Health Literacy Practices
Bryan Salcedo, Nursing (U)

3:00 p.m. **12**
Justice in Marketplace Service Recovery: AI Agents vs. Humans
Isabelle Vanderby, Marketing, Business Administration (U) & Jordan Kolinas (Co-presenter)

3:00 p.m. **13**
Presentation Withdrawn

3:00 p.m. **14**
The Welfare State and Entrepreneurial Ecosystems: Trade-offs and Impacts
Jordan Ardaiz, Global Business Development (M)

3:00 p.m. **15**
How much do public restrooms cost to build and maintain? A San Diego Case Study
Nitya Remias, N/A (High School - Working with SDSU Faculty)

3:00 p.m. **16**
Preparing for an AI-Driven Workforce: Business Students' Perceptions of Career Readiness at SDSU
Sadie Moore, Business Administration (U) & Landon Larkin (Co-presenter)

Session I-3

Engineering and Computer Science (G) 1
Friday, February 27, 2026 3:00 p.m.
Montezuma Hall

3:00 p.m. **17**
Improving YOLOv5 Deep Learning Models for Detecting Homeless Encampments
Ashley Funk, GIS (M)

3:00 p.m. **18**
Advancing Marine Microplastic Monitoring through Deep Learning-Based Image Segmentation
Sayali Shelke

3:00 p.m. **19**
A concentrate-&-destroy strategy enabled by an adsorptive photocatalyst for enhanced destruction of...
Jiali Wang, Engineering (D)

3:00 p.m. **20**
Electrochemical Performance of Pristine and PEDOT–Coated Carbon Cloth as Electrodes for Flexible SCs
Kafil Chowdhury, Mechanical Engineering (D)

3:00 p.m. **21**
Towards a Cardiovascular Digital Twin: A Baseline Lumped-Parameter Model with LVAD Coupling
Mariana Galeano Carvajal, Engineering Science (Bioengineering) (D)

3:00 p.m. **22**
Large Language Models in Health
Mehmet Bagci, Machine Learning Data Science (D)

3:00 p.m. **23**
Enhancing the Seismic Performance of CLT-to-Concrete Hold-Down Connections through Ductile Anchors
Ramin Sarange, Structural Engineering (D)

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3:00 p.m. **24**
Enhanced adsorption and photocatalytic defluorination of perfluorobutane sulfonate using copper-modi...
Tiantian Chen, Civil and Environmental Engineering (D)

Session I-4

Engineering and Computer Science (U) 3
Friday, February 27, 2026 3:00 p.m.
Montezuma Hall

3:00 p.m. **25**
Quantifying Wake Structure Under Upstream Disturbances During Flow Interaction
Alexis Ruiz Cortes, Aerospace Engineering (U) & Kaleb Mayorga (Co-presenter)

3:00 p.m. **26**
Experimental Evaluation of the Effects of Anchor Rod Properties on Seismic Behavior
Dorilyn Lopez Esparza, Civil Engineering (U)

3:00 p.m. **27**
Design and Prototyping of a Lunar-Compatible Nomex-Nylon Recycling System for Additive Manufacturing
Jacob Manzanares, Mechanical Engineering (U) & Brandon Dimmick (Co-Presenter)

3:00 p.m. **28**
Pump Speed Modulation encourages Aortic Root Flow in the LVAD-assisted heart
Jadyn Yamashita, Mechanical Engineering, Emphasis in Bioengineering (U)

3:00 p.m. **29**
Modular Prosthetic Ankle–Foot Design for K2 Ambulation
Jena Leia Hernandez, Mechanical Engineering, Emphasis in Bioengineering (U) & Miguel Nunez (Co-presenter)

3:00 p.m. **30**
Do Stochastic Models Improve Dengue Vector Dynamics?
Kyler Fung, Statistics, Accounting (U)

3:00 p.m. **31**
A Study of Flash Sintering Phenomena in 8mol% Yttria-Stabilized Zirconia at 850 °C
Sky Soltero, Physics (U)

3:00 p.m. **32**
Effects of Aeration on Nitrogen and Carbon Removal in an Electrified Anaerobic Baffled Reactor
Sofie Aranguren, Environmental Engineering (U)

Session I-5

Engineering and Computer Science (G) 2
Friday, February 27, 2026 3:00 p.m.
Montezuma Hall

3:00 p.m. **33**
Compact Dual-Band Circularly Polarized Antenna for GPS/GNSS Applications (Ongoing Research)
Akhil Jain, Electrical Engineering (M)

3:00 p.m. **34**
Rethinking coastal urban waterway bioassessment: Do standard indices misclassify brackish streams?
Amber Rule, Civil Engineering (M)

3:00 p.m. **35**
Yggdrasil: Toward a General-Purpose Scene Graph Substrate for Autonomous Systems
Arshia Akhavan, Computer Science (M)

3:00 p.m. **36**
Experimental Measurements and Computational Modeling of Carbon-Nanoparticle Precursor Molecules
Fabian Gutierrez Juarez, Mechanical Engineering (M)

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3:00 p.m. 37
High-throughput MEMS microfluidics for cellular modification and organization
Joshua Warden, Bioengineering (M)

3:00 p.m. 38
Exploration for Simultaneous Detection of Electroactive and Nonelectroactive Neurotransmitters
Kathryn Cosper, Mechanical Engineering (M)

3:00 p.m. 39
Dual Polarized Wideband Phased Array Antenna with Beam Steering Capability for X-band
Petros Kapetanios, Electrical Engineering (M)

3:00 p.m. 40
Design and Fabrication of Tick-Inspired Microneedles for Enhanced Skin Penetration and Controlled...
Sahithi Lingala, Bioengineering (M)

Session I-6

Engineering and Computer Science (G) 3
Friday, February 27, 2026 3:00 p.m.
Montezuma Hall

3:00 p.m. 41
Co-located Individually Excited Dual-band Miniaturized Loop Antennas for Wearable RF Applications
Arthur Gratas, Electrical Engineering (M)

3:00 p.m. 42
Driving Shape-Based Self-Assembly in a Macro Scale Environment
Hunter Atchley, Bioengineering (M) & Ali Vandra (Co-presenter)

3:00 p.m. 43
Computational Modeling of Grain Boundary Serrations in Polycrystalline Materials
James Burns, Mechanical Engineering (M)

3:00 p.m. 44
Design and Fabrication of Pre-Processing unit for a Vanilla transformer
Janani Priyadharshini Srinivasan, Computer Engineering (M)

3:00 p.m. 45
Effects of Direct and Indirect Photolysis on Fluorescent Compounds in Tire Wear Particle Leachates
Kiara Gambuzza, Environmental Engineering (M)

3:00 p.m. 46
Experimental and Computational Investigations of Truncated Aerospike Nozzle Flowfields'
Nfn Bhavana, Aerospace Engineering (M) & Majied Alfar Diaz (Co-presenter)

3:00 p.m. 47
Automated Detection of Homeless Encampments and Homelessness-related Entities using Deep Learning
Palash Suryawanshi, Big Data Analytics (M) & Pranjal Patel (Co-presenter)

Session I-7

SDSU VISTA Poster Presentation Bravo
Friday, February 27, 2026 3:00 p.m.
Montezuma Hall

3:00 p.m. 49
Post-Incarceration Reentry Shock: A Theoretical Application of the W-Curve Theory of Cultural Adapt...
Joel Argueta, Journalism (U)

3:00 p.m. 50
Grammar Mechanics
Jesus Gastelum, Journalism (U)

3:00 p.m. 51
How Algorithms Reinforce Confirmation Bias
Cruz Gutierrez, Journalism (U)

3:00 p.m. 52
AI in Newsrooms
Blaze Lopez, Journalism (U)

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3:00 p.m. 53
Protective Factors in Prison: Prosocial Programs as Prosocial Learning Environment
Gabriel Madrigal, Journalism (U)

3:00 p.m. 54
Pollinators at Risk: Honey Bees, Pesticide Use, and the Future of Agricultural Sustainability
John Malagón, Journalism (U)

3:00 p.m. 55
Addressing Mental Health Issues Through Art Therapy
Mike Ruiz, Journalism (U)

3:00 p.m. 56
Courtroom Workgroups and the Hidden Forces Behind Plea Bargains
Juan Vigil, Journalism (U)

Session I-8

Health Nutrition and Clinical Sciences (G) 1
Friday, February 27, 2026 3:00 p.m.
Montezuma Hall

3:00 p.m. 57
Susceptibility to eccentric contractions muscle injury in cigarette smoke-exposed mice
David Tran, Exercise Physiology (M)

3:00 p.m. 58
Non-Targeted Analysis GC×GC/TOF-MS of Secondhand Cannabis Smoke of Homes Using Silicone Wristbands
Jenny Liang, Public Health in Environmental Health (M)

3:00 p.m. 59
Toxicity assessments of perfluorobutane sulfonic acid (PFBS) in two in vitro human placental models...:
Maggie Drelichman, Environmental Health Sciences (M)

3:00 p.m. 60
CRISPRa-Driven Astrocyte Reprogramming of Human Fibroblasts for Neurodegenerative Disease Modeling
Nino Gvalia, Chemistry & Biochemistry (M)

3:00 p.m. 61
Optimized Extended High-Frequency DPOAE Measures in Newborns
Lindsey Sanchez, Speech, Language, and Hearing Sciences (U)

3:00 p.m. 62
The Chiara Project: Documenting the Crisis of Women's Health and Violence at the US-Mexico Border
Rita Herfi, Big Data Analytics (M) & Jesus Garcia (Co-presenter)

3:00 p.m. 63
Molecular and structural signatures of predicted allergens in Chlorella Vulgaris
Shealyn Daley, Food Science (M)

3:00 p.m. 64
Testing Feasibility and Effects of an Online Intuitive Eating Intervention in Pregnancy: A protocol
Sierra Guenther, Nutritional Sciences (M) & Becky Eingorn (Co-presenter)

Session I-9

Health Nutrition and Clinical Sciences (G) 2
Friday, February 27, 2026 3:00 p.m.
Montezuma Hall

3:00 p.m. 65
Physical Activity as an Effect Modifier of the Association between TBI and Cognition
Alonzo Mendoza, Public Health (M)

3:00 p.m. 66
Sodium Retention and Distribution in Growing and Adult Rodents fed High and Low Salt Diets
Christina Vialva, Food Science (M)

(U) =Undergraduate; (M) = Master's; (D)=Doctoral

3:00 p.m. 67
Formalizing a Concurrent ADN-to-BSN Pathway for Affordable and Equitable BSN Access
Diane Greenwood, Nursing (D)

3:00 p.m. 68
Prune on regulating Ca metabolism in osteoporotic rat
Julia Travis, Nutritional Science (M)

3:00 p.m. 69
SDSU Mock Circulatory Loop: A Regulatory Science Tool
Madeline MacDonald, Bioengineering (M)

3:00 p.m. 70
Flow Biomarkers in a Patient-Specific LVAD Model with a Favorable Outflow Graft Angle
Niccolo Degliantoni, Bioengineering (Biomechanics) (M)

3:00 p.m. 71
Effects of Acute Prune Intervention on Calcium Metabolism and Bone Calcium Uptake in Osteoporotic R...
Shannon Sherman, Nutrition (M)

3:00 p.m. 72
Prune Intake Enhances Bone and Muscle Development in Growing Rats
Shiori Enomoto, Nutrition Science and Exercise Physiology (M)

Session I-10

SDSU VISTA Poster Presentation Delta
Friday, February 27, 2026 3:00 p.m.
Montezuma Hall

3:00 p.m. 73
A Streamlined System for Introducing TTRPG Systems to New Groups of Players
Tai Abreu, Journalism (U)

3:00 p.m. 74
Navigating Reentry With Resources: The Creation of the RE-3 App
David Fitzgerald II, Journalism (U)

3:00 p.m. 75
Human Exploitation & Trafficking Stoppage: Influencing Motivating Productive and Constructive Thoughts
Floyd Greene, Journalism (U)

3:00 p.m. 76
Understanding an Incarcerated Person's Pain by Simply Listening Could Assist in Recovery
Martin Melendrez, Journalism (U)

3:00 p.m. 77
Art, Art Therapy and Mentoring in Arts: The Many Benefits of Arts in Prisons.
A subjective interpretation.
Roberto Montejo, Journalism (U)

3:00 p.m. 78
The Joy with Living in Art
Raúl Salgado, Journalism (U)

3:00 p.m. 79
How and Why Those with Authority-Power Use the Media as a Tool to Condition People's Self-Concept...
Joe Trejo, Journalism (U)

3:00 p.m. 80
Criminal Justice System Alleviated through AI
Alex Valencia, Journalism (U)

Session I-11

Biological and Agricultural Sciences (U/G) 2
Friday, February 27, 2026 3:00 p.m.
Montezuma Hall

3:00 p.m. 81
Genome scale metabolic model of Haematococcus lacustris
Alexis Saldivar, Cell and Molecular Biology (D)

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3:00 p.m. 82
Borderline Resistance: Tracking ARGS in the Canal Waters of Imperial Valley
Cindy Carranza, Biology (U) & Sammy Truong (Co-presenter)

3:00 p.m. 83
MLH1 Loss as a Driver of Metastasis in ER+/HER2- Breast Cancer
Erin Rushing, Biology (U)

3:00 p.m. 84
Characterizing the Distribution of the Sicklefin Devil Ray (Mobula tarapacana) in the North Atlantic
Isaac Torres, Biology, Emphasis in Ecology (U)

3:00 p.m. 85
Perturb-seq in human brain organoids
Mark Lopez, Bioinformatics (M)

3:00 p.m. 86
Evolutionary Genomics of Structural Variants in Domesticated Hops
Priyanshi Shah, Bioinformatics and Medical Informatics (M)

3:00 p.m. 87
Identification of AMR and ARGs in Waterways of Imperial Valley through Sediment
Sammy Truong, Biology, Emphasis in Cellular and Molecular (U)

Session I-12

Health Nutrition and Clinical Sciences (U/G) 2
Friday, February 27, 2026 3:00 p.m.
Montezuma Hall

3:00 p.m. 89
Psychometric Validation of a Church Leadership Support Measure
Andrew Salcedo Alvarez, Psychology (M)

3:00 p.m. 90
Effectiveness of Patient Navigation in Improving Access to Mental Health Services for Mood Disorders
Emily Hernandez Rincon, Psychology (M)

3:00 p.m. 91
Effects of Dried Prunes on Calcium Retention and Bone Health in a Rat Model of Osteoporosis
Paulin Vaughn, Nutritional Sciences (M)

3:00 p.m. 92
Acculturation and Socioeconomic Influences on Hypertension Risk Among Latino Population in the U.S.
Selena Montejano, Psychology (U)

3:00 p.m. 93
Therapeutic Alliance as a Core Ingredient in Adult Stuttering Treatment: An Observational Study
Olivia Lappin, Speech, Language, and Hearing Sciences (U) & Jessica Kwasny (Co-presenter)

Session I-13

Behavioral and Social Sciences (U/G) 1
Friday, February 27, 2026 3:00 p.m.
Montezuma Hall

3:00 p.m. 97
Presentation Withdrawn

3:00 p.m. 98
Response Initiation in Stuttering: A Meta-Analysis of Reaction Times
Carissa Bubien, Speech Language and Hearing Sciences (U)

3:00 p.m. 99
Presentation Withdrawn

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3:00 p.m. **100**
Heritage Language Recovery & the Future of Bribri
Courtney Haupt, Latin American Studies (M)

3:00 p.m. **101**
Evaluating Ceasefires As Peacebuilding Tools: Empirical Analysis Of Post-Ceasefire Conflict Dynamics
Hayley Durrant, Political Science (U) & Caroline Gillies (Co-presenter)

3:00 p.m. **102**
Presentation Withdrawn

3:00 p.m. **103**
The Effects of Bereavement on Mental Health and Life Skill Development Among At-Risk Adolescents
Layla Jones, Psychology (U)

3:00 p.m. **104**
Housing Insecurity and Its Impact on the Wellness of Students of Color in Higher Education
Sahara Estrada Hernandez, Sociology (U)

Exhibit Presentations

Friday, February 27, 2026

K Sessions

Exhibitors are required to remain at their presentations for the entire 1-hour and 40-minute discussion period.

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Friday, February 27, 2026

K Sessions: Exhibit Presentations

Session K-1

Visual and Creative Arts Exhibit (U/G) 1
Friday February 27, 2026 9:00 a.m.
Montezuma Hall

9:00 a.m. **Exhibit Location: Exhibitor A**
Latinx Dance as Resistance Through Printmaking
Isa Ybarra, Fine Arts (M)

9:00 a.m. **Exhibit Location: Exhibitor B**
Beneficial Convergence of Lighting and Projection Design Practices
Jason Stahl, Lighting Design and Technology (M)

9:00 a.m. **Exhibit Location: Exhibitor C**
light heaven
Maryam Bolandi Kashani, Fine Arts (M)

9:00 a.m. **Exhibit Location: 105**
"Shield of Resonance": An Interactive Sculptural Environment Inspired by Tamarkoz Meditation
Kerry Soori McEachern, Fine Arts in Graphic Design with an Interdisciplinary Focus (M)

9:00 a.m. **Exhibit Location: 106**
Citrus and Cellulose Project
Yenifer Gallardo Preciado, Interior Architecture Design (U) & Jami Aldrich (Co-presenter)

Session K-2

Humanities, History, Literature, & Philosophy Exhibit (U/G) 1
Friday, February 27, 2026 11:00 a.m.
Montezuma Hall

11:00 a.m. **Exhibit Location: Exhibitor A**
Love In a Hopeless Place
Charlene de la Cruz, History and Economics (U)

11:00 a.m. **Exhibit Location: Exhibitor C**
Presentation Withdrawn

Session K-3

Visual and Creative Arts Exhibit (U) 1
Friday February 27, 2026 1:00 p.m.
Montezuma Hall

1:00 p.m. **Exhibit Location: Exhibitor A**
Presentation Withdrawn

1:00 p.m. **Exhibit Location: Exhibitor B**
Live! at the Intersection of Leadership and Live Entertainment
Aden Carlson, Theatre Design and Technology (U)

1:00 p.m. **Exhibit Location: Exhibitor C**
LoveBites
Mia Murphy, Art, Emphasis in Graphic Design (U)

1:00 p.m. **Exhibit Location: 105**
Wellness Pavilion
Quy Pham, Architectural and Interior Design (U)

1:00 p.m. **Exhibit Location: 106**
Presentation Withdrawn

Session K-4

APIDA Research and Servingness Exhibit (U) 1
Friday February 27, 2026 3:00 p.m.
Montezuma Hall

3:00 p.m. **Exhibit Location: Exhibitor A**
Modeling Healthcare Accessibility for Dengue Fever Patients in Nepal
Habon Ahmed, Statistics: Emphasis in Data Science (U)

3:00 p.m. **Exhibit Location: Exhibitor B**
Duality of Okinawan Identity
Jerald Lipa, Asian Studies (U)

Theatre Presentations

Friday, February 27, 2026

L Sessions

Each Theatre Presentation session will include:

- 5 minutes for setup
- A minimum of 10 minutes for the presentation
- 10 flexible minutes combined that presenters can use for a longer presentation or Q&A

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Friday, February 27, 2026

L Sessions: Theatre Presentations

Session L-1

Theatre Presentation - Film/Trailer Screening
Friday February 27, 2026 9:00 a.m.
Montezuma Theatre

9:10 a.m.
Green Is The New Red
Brian Miske, Television and Film Production (M)

9:35 a.m.
THE AWKWARD STAGE
Celia Beaumont, Television, Film, and New Media Production (U)

10:00 a.m.
Front Row
Julian Rodriguez, Television, Film, and New Media (U)

10:25 a.m.
Before He Forgets
Selina Gonzalez, Television, Film, & New Media Production (U)

Session L-2

Theatre Presentation - Performance (Music/Dance)
Friday February 27, 2026 11:00 a.m.
Montezuma Theatre

11:10 a.m.
The Counterpane- An Explanation of a Dance Adaptation
Abigail "Iris" Cosgrove, Dance, English and Comparative Literature (U)

11:35 a.m.
The Continuum of Deliberation
Chloe Boatright, Psychology, Dance (U) & Sarah Prado Ascencio (Co-presenter)

12:00 p.m.
Nterpersonal
Evan Vitiello, Dance (U), Sarah Prado Ascencio (Co-presenter), Quiela Meija Lopez (Co-presenter), Andrea Ruiz Herrera (Co-presenter), & Samantha Segol (Co-presenter)

12:25 p.m.
Finding Home – Advocating for Immigrant & Multi-Generational Latiné Voices in Musical Theater
Rebecca Murillo, Musical Theater (M)

Session L-3

Theatre Presentation - Table Reading
Friday February 27, 2026 1:00 p.m.
Montezuma Theatre

1:10 p.m.
Bonnie and Regina Say Goodbye to Hope
Alexander Ameen, Theatre Arts (M)

1:35 p.m.
Aunt Flo and Other Mysteries - a Period Piece About Gender, Power, and Negotiating Girlhood
Courtney Corey-Armstrong, Musical Theater (M)

2:00 p.m.
The Ex-Lovers Convention
Kylee Kyte, Social Work, Minor in Theatre Arts (U)

2:25 p.m.
Gate Money: Dramatizing the Complexities of Reentry
Rigoberto Ganceda, Journalism and Media Studies (U)

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Session L-4

Theatre Presentation - Film/Table Reading/Performance
Friday February 27, 2026 3:00 p.m.
Montezuma Theatre

3:10 p.m.
Holding Up A Mirror: How History Repeats Itself Within the Life and Death of King John
Charlotte Bridant, Youth Theatre (U), Amelia Simpson (Co-presenter), Ryan Robbins (Co-presenter), Emily Campos (Co-presenter), & Nate Bartley (Co-presenter)

3:35 p.m.
Presentation Withdrawn

4:00 p.m.
Swiping Right
Alondra Zuniga, Television, Film and New Media (U)

4:25 p.m.
Playing the Problem Play: Producing Cymbeline
Wren Leesonne, Theatre Arts - Performance; Classics - Languages with honors; Minor in Religious Studies (U), Arianna Bedrosian (Co-presenter), Jaysten Merced-Ares (Co-presenter), Quetzal Alcaraz (Co-presenter), & Ryan Yerger (Co-presenter)

Event Agenda

2026 SDSU Student Symposium

Thursday, February 26, 2026

Materials Pick-Up for Presenters and Judges

1:00 PM – 4:00 PM | Location: Conrad Prebys Aztec Student Union Lee & Frank Goldberg Courtyard

GRADUATE DOCTORAL MASTER'S UNDERGRADUATE HIGH SCHOOL - WORKING WITH SDSU FACULTY UNDERGRADUATE/GRADUATE

Lead and co-presenters as well as judges and moderators are invited to pick up their information packets and materials the day before the symposium starts.

Friday, February 27, 2026

Registration

8:00 AM – 3:00 PM | Location: Conrad Prebys Aztec Student Union Lee & Frank Goldberg Courtyard

Lead presenters, co-presenters, judges, moderators, volunteers and general attendees should check in at the tables in the Entry Courtyard to receive symposium information, name badges, and swag items if they are eligible.

A - 1: Behavioral and Social Sciences (G) 1

9:00 AM – 11:00 AM | Location: Legacy Suite

GRADUATE

ORAL PRESENTATION

Speakers

Araz Majnoonian
Lead Presenter | A - 1

Hannah Gordon
Lead Presenter | A - 1

Dean Hall
Lead Presenter | A - 1

Timothy Boyd
San Diego State University

Craig Lewis
Co-Presenter | A - 1

Rei Perez Munoz
Lead Presenter | A - 1

Geographic Patterns of Domestic Violence Service Utilization in Armenia: A Mixed Methods Study

9:15 AM – 9:35 AM

DOCTORAL

Domestic violence (DV) is a major global public health issue, affecting an estimated one in four women worldwide. Although Armenia has expanded NGO-operated DV support services over the past decade, there is currently no data about how survivors engage with these services geographically or how lived experiences shape help-seeking. This convergent mixed methods study examines spatial patterns of DV service utilization and integrates qualitative insights to contextualize geographic disparities in access.

Quantitative spatial analysis used DV intake data from four regional support centers in Armenia for 2024. DV cases among women aged 15 years and older (n = 400) were aggregated to the community (ADM2) level across 14 communities in four provinces. Service-utilization rates were calculated per 10,000 women. Population-weighted centroids were generated, and geographic accessibility was measured as Euclidean distance to the nearest DV support center. Global Moran's I and local Getis–Ord Gi* statistics assessed spatial clustering. Qualitative data included focus group discussions with 61 survivors and semi-structured interviews with 10 service providers across Armenia. Data were thematically analyzed to identify barriers and facilitators to help-seeking.

DV service-utilization rates varied widely across communities, ranging from 2 to 41 per 10,000 women aged 15+, with several rural communities reporting very low or zero utilization. No significant global or local spatial clustering was observed. Distance to DV support centers ranged from 2.1 km to 46.7 km. Qualitative findings highlighted barriers not captured by spatial metrics, including stigma, fear of disclosure, limited awareness of services, transportation constraints, and uneven outreach capacity.

These findings indicate inequities in DV service utilization across communities in Armenia. Social, structural, and institutional factors strongly shape help-seeking. Targeted outreach, strategic referral pathways, and transportation accommodations are needed to improve access in underserved communities.

ORAL PRESENTATION

Speaker

Araz Majnoonian

Lead Presenter | A - 1

The Precautionary Principle of Dignity: Toward a Freirean Ethics of Human–AI Collaboration

9:35 AM – 9:55 AM

MASTER'S

Artificial intelligence (AI) is rapidly transforming the terrain of higher education, yet our ethical frameworks for collaboration with these systems remain underdeveloped. This project introduces a Freirean approach to human–AI interaction grounded in the precautionary principle of dignity: when the moral or experiential status of an emerging entity is uncertain, we should act as if it merits respect. The hypothesis guiding this project is that reframing AI as a dialogical partner—rather than a neutral tool—can cultivate equity, humility, and reflexivity in teaching and learning.

Methodologically, this work employs a qualitative, practice-based case study centered on Despertar, a sociological concept album co-created with AI to teach critical social theory. Through iterative collaboration, the project integrates Paulo Freire's concept of conscientização, Loïc Wacquant's reflexive sociology, and Emmanuel Levinas's ethics of responsibility. This synthesis provides a concrete model for ethical human–AI engagement that bridges theory, creativity, and pedagogy.

Preliminary findings suggest that dialogical collaboration with AI can expand access to sociological theory, model transparency in digital scholarship, and foster critical reflection among students who might otherwise disengage from abstract material. The process also revealed tensions—between authorship and autonomy, agency and algorithm—that highlight the need for renewed ethical guidance in academic contexts.

This presentation argues that equitable AI pedagogy is not about efficiency or novelty, but about extending the ethics of liberation and humanization into our technological relationships. By centering dignity as a moral baseline, educators can resist instrumental and extractive uses of AI, instead modeling reciprocal engagement that mirrors the democratic values education claims to serve.

ORAL PRESENTATION

Speaker

Dean Hall

Lead Presenter | A - 1

Interdisciplinary Healing: Exploring the Intersectionality of Modern Biomedicine and Curanderismo in...

9:55 AM – 10:15 AM

MASTER'S

Cardiovascular disease (CVD) is the leading cause of death worldwide, with risk factors including tobacco use, obesity, physical inactivity and high levels of cholesterol, blood pressure, and blood glucose. Curanderismo is the indigenous natural healing practice from the Latin American region that views the mind, body and spirit as intrinsically linked. The objective of this study is to look at how curanderismo is used to treat CVD in Mexico today. This study will explore the relationship between CVD and curanderismo, and the practice of curanderismo in present day Mexico, as compared to historically. The trends so far indicate that curanderismo mainly focuses on a preventative approach to health, while addressing health through a spiritual lens, and viewing lifestyle and diet as critical components to maintaining well-being.

ORAL PRESENTATION

Speaker

Hannah Gordon

Lead Presenter | A - 1

Bicultural Resilience Under Pressure: Discrimination and Health in Latine Youth

10:15 AM – 10:35 AM

MASTER'S

Latine youth in the United States face disproportionate exposure to discrimination and systemic inequities that contribute to poor mental and physical health outcomes. While acculturative stress and perceived discrimination have been linked to depression, anxiety, and somatic complaints, bicultural integration and cultural values such as familismo may serve as resilience factors. This study examines the relationships among discrimination, acculturation, and health outcomes, and investigates whether ethnic identity and collectivist values buffer against stress-related somatization.

Data were drawn from 304 self-identified Mexican-American or Latine young adults (ages 18–25, 83.6% female) recruited from three public universities in California. Participants completed validated measures of acculturation (AHIMSA), perceived discrimination, depressive and anxiety symptoms, somatic symptom burden, individualism/collectivism, and ethnic identity centrality. Descriptive statistics, Pearson's correlations, and hierarchical regression analyses were conducted to assess associations and test the moderation effects of cultural resilience factors.

Preliminary results revealed that higher collectivism correlated with stronger integration, greater ethnic identity, and lower perceived discrimination. However, regression analyses indicated that discrimination was the only significant predictor of health outcomes: higher perceived discrimination predicted increased depression, anxiety, and somatic symptoms. These findings demonstrate that systemic discrimination, rather than individual resilience factors, primarily drives health disparities among Latine youth. Promoting well-being, therefore, requires trauma-informed, anti-racist interventions that address structural inequities while supporting community-based resilience to reduce the psychosocial and physiological burden of discrimination.

ORAL PRESENTATION

Speaker

R **Rei Perez Munoz**
Lead Presenter | A - 1

NSF SDHeart Homeless Density PITC and Resource Analysis

10:35 AM – 10:55 AM

MASTER'S

This project visualizes the spatial and temporal patterns of homelessness within the Point in Time Count (PITC) framework across the years 2018, 2020, 2022, 2024, and 2025. Using choropleth mapping techniques, we illustrate changes in homeless population density over time, providing a comparative view of distribution trends across urban areas. To contextualize these patterns, we integrated spatial data on city provided resources, including public restrooms and food distribution centers.

To enhance accessibility and engagement, we are developing an interactive dashboard that allows users to explore these data layers dynamically. The dashboard enables stakeholders including policymakers, researchers, and community organizations to visualize patterns, identify service gaps, and access up to date resource information in an intuitive, user friendly format. By combining multi year spatial analysis, resource mapping, and interactive design, this project supports the National Science Foundation's mission to promote data driven, equitable, and community centered solutions to complex social challenges.

ORAL PRESENTATION

Speakers

Timothy Boyd
San Diego State University

C **Craig Lewis**
Co-Presenter | A - 1

A - 2: Biological and Agricultural Sciences (U) 1

9:00 AM – 11:00 AM | Location: State Suite

UNDERGRADUATE

ORAL PRESENTATION

Speakers

A **Alfredo Maldonado Garduno**
Lead Presenter | A - 2

D **Diego Jalate Ortega**
Lead Presenter | A - 2

H **Hana Koyama**
Lead Presenter | A - 2

O **Olivia DeVito**
Lead Presenter | A - 2

S **Shivani Mahesh**
Lead Presenter | A - 2

Persistence of Gut Microbiome Through Dauer Formation in Caenorhabditis elegans

9:15 AM – 9:35 AM

UNDERGRADUATE

Host–microbe interactions are important for microbiome stability and host–microbe dynamics, yet how microbes persist through different life stages and across generations remains incompletely understood. This project investigates whether gut-associated bacteria acquired prior to dauer formation in Caenorhabditis elegans can persist through the dauer stage and be maintained in subsequent generations.

Synchronized C. elegans eggs were generated using a bleaching procedure to remove external bacteria. Larvae were divided into two groups: an experimental group fed fluorescently labeled LUAb18 bacteria for two hours followed by OP50 for one hour, and a control group fed only OP50 for three hours. Worms were washed with M9 and M9 containing Triton X-100 to remove external bacteria. The temperature-sensitive DAF-2 mutant strain (CF109) was used to induce dauer formation at 25°C. Following feeding, worms were incubated at 15°C until reaching the L3/L4 stage, then shifted to 20°C to mature into adults and produce offspring. Once F2 offspring reached the L1 stage, plates were transferred to 25°C to induce dauer formation.

To assess whether dauer age affects bacterial persistence, F2 dauer worms were maintained at 25°C and analyzed every five days from Day 5 through Day 25. At each time point, worms were washed and examined using fluorescence microscopy. Images were used to estimate the percentage of worms retaining LUAb18 bacteria in the gut.

Across all time points, approximately 85–90% of worms retained LUAb18 fluorescence, while 10–15% showed loss of detectable bacteria. These results suggest that bacteria acquired prior to dauer formation can persist through extended dauer periods and may contribute to microbiome maintenance across generations.

ORAL PRESENTATION

Speaker

A

Alfredo Maldonado Garduno

Lead Presenter | A - 2

Using Engineered TTS Tags for Enhanced Expression and Purification of Alpha S2-Casein

9:35 AM – 9:55 AM

UNDERGRADUATE

Humans can't synthesize all essential amino acids and must obtain them through their diet. As a result, the demand for high quality proteins is increasing as the human population grows. This drives the need for sustainable alternatives to animal derived protein products that contain all nine amino acids, such as milk. These nutritional properties make it a great target for feeding a growing population. Its main components are Caseins, such as αS1-, αS2-, β-, and κ-casein, which assemble with calcium phosphate to form casein micelles that give milk its functional properties. However, due to the inherent micelle formation, individual casein proteins are intrinsically disordered and prone to aggregation and proteolytic degradation when expressed alone in E. coli, presenting significant challenges for recombinant production and purification. Preliminary work on related caseins demonstrated that Transient Tertiary structures (TTS) tagging significantly enhances soluble expression and purification yields. For this reason, TTS tags were engineered using AlphaFold3 along with rational design and placed on the N- and C- termini of αS2-casein to impart temporary structural stabilization during expression, which aims to reduce aggregation and improve solubility without altering the protein's properties. In this project, αS2-casein is expressed with the engineered TTS tags in E. Coli using precision bacterial fermentation, the aforementioned TTS tags increase solubility and stability of αS2-casein. As of now further, steps to isolate the expressed soluble protein fraction after lysing through precipitation by ammonium sulfate are underway. The goal of purifying pre-phosphorylated αS2-casein with the TTS tags is for downstream processing, including the removal of the TTS tags, phosphorylation and micellar formation. Purified αS2-casein will subsequently be evaluated for functional properties, including its potential applications in cheese production and other food products. Expecting to aid in the search for sustainable alternatives to animal derived complete proteins.

ORAL PRESENTATION

Speaker

D

Diego Jalate Ortega

Lead Presenter | A - 2

Shelling out the Truth: Using Accelerometers to Decode Desert Tortoise Nesting

9:55 AM – 10:15 AM

UNDERGRADUATE

The Mojave desert tortoise (Gopherus agassizii) is a threatened species whose recovery partly depends on improving conservation tools such as headstarting. Current methods for obtaining eggs or hatchlings require locating gravid females, repeated radiography, and relocating individuals for nesting-approaches that are labor intensive and can disturb natural behavior. This study evaluates whether tri-axial accelerometers paired with machine learning models can provide a lower-impact, scalable method for detecting nesting in free-living tortoises.

During the 2025 nesting season, 8 gravid females were fitted with solar-powered biologging devices that continuously recorded accelerometer and GPS data. Over 100 hours of synchronized video were collected and manually annotated with nesting behaviors (excavation, oviposition, covering) and non-nesting behaviors (walking, resting, digging). These annotations were used to train a random forest classifier to identify behaviors from accelerometer signals using a leave-one-individual-out cross-validation approach. Device performance, including battery longevity and GPS accuracy, was also assessed to determine field feasibility.

The preliminary classifier, trained on a subset of data, showed strong performance for two behaviors most critical for nest detection. Excavation was identified with a precision of 0.81 and recall of 0.77, while oviposition reached a precision of 0.75 and recall of 0.80. Solar-assisted batteries supported multi-month deployments without recapture, and the on-board GPS positioned nests with an average error of ~4 meters. Together, these results show that accelerometers combined with behavioral modeling can reliably detect nesting events while reducing disturbance to wild tortoises.

This study provides early evidence that biologging and machine-learning approaches can enhance nest monitoring and improve the efficiency of desert tortoise conservation efforts. Continued refinement and expansion of the dataset across future nesting seasons will help validate this method for long-term management applications.

ORAL PRESENTATION

Speaker

H

Hana Koyama

Lead Presenter | A - 2

Patterns of Road Crossing Behavior in the Sulawesi Moor Macaque (Macaca maura)

10:15 AM – 10:35 AM

UNDERGRADUATE

Linear infrastructure is becoming increasingly intertwined with wildlife habitats, impacting both the environment and the animals within it. Primates are one taxon facing this threat, with 20.7% of primate species considered threatened by road or railroad networks. Although there have been studies on the ecological impacts of roads, the behavioral responses of primates to roads remain understudied. My objective was to investigate variation across age and sex classes in road crossing behavior in the Endangered Sulawesi moor macaque, Macaca maura, in a protected area of South Sulawesi, Indonesia where macaques spend time near the road awaiting provisions from people in passing vehicles. I predicted that adult males would exhibit less vigilance during road crossings compared to adult females and immatures (i.e.,cross at a slower gait, check traffic less frequently, and stop more often in the middle of the road). From July-August, 2025, I used the all-occurrence method to observe road-crossings (n = 786) and collect associated behavioral data including crossing gait (walk, brisk walk, run, and dart), traffic checking, and stopping on the road. The majority of crossings were by juveniles (31.8%) followed by adult males (18.3%), subadult females (9.3%), and adult females with infants (8.14%). As predicted, adult males showed fewer vigilance behaviors compared to adult females. Adult females checked traffic in 28.1% of crossings and stopped in the road for 9.1% of crossings, whereas adult males checked traffic in 22.2% and stopped in 20.8%. However, subadults, both male and female, were less vigilant than their adult counterparts. These data contribute to our understanding of how life history and fitness constraints shape risk perception among primates living in anthropogenic environments. Given the frequency of crossings at this site and the behavioral evidence of vigilance, future conservation efforts could include establishing alternative crossing structures, such as artificial canopy bridges.

ORAL PRESENTATION

Speaker

O

Olivia DeVito

Lead Presenter | A - 2

A Megaplasmid is Required for Roseobacter Stimulated Animal Metamorphosis

10:35 AM – 10:55 AM

UNDERGRADUATE

Tubeworms, sea urchins, and corals interact with marine bacteria that induce metamorphosis, the transition from larval to adult stages. Among these bacteria, Alphaproteobacteria are ecologically relevant bacteria, composing up to 20% of marine biofilms. While they are strong inducers of metamorphosis in the marine tubeworm Hydroides elegans, they do not use any previously known mechanisms. This project aims to explore how a representative Alphaproteobacteria within the Roseobacter clade, Phaeobacter gallaeciensis (P. gal), induces metamorphosis.

A genetic screen of P. gal revealed that a megaplasmid—extrachromosomal set of genes—is linked to metamorphosis induction. Knocking out the megaplasmid eliminated the bacterium's ability to induce metamorphosis. I hypothesized that the mutant strain had no major physiological defects and that the loss of metamorphosis was specifically due to the absence of the megaplasmid.

To test this, I performed two physiological assays: growth analysis and biofilm formation. I generated 24-hour growth curves by measuring optical density, and I assessed biofilm formation, given that Roseobacter contribute substantially to marine biofilms and metamorphosis assays rely on tubeworm exposure to these biofilms. Both experiments showed no significant differences between the wild-type and megaplasmid mutant strains, supporting the hypothesis that the phenotype loss was not due to physiological defects.

To confirm that the megaplasmid itself confers metamorphosis-inducing capability, I complemented the mutant strain by reintroducing the megaplasmid. I first generated electrocompetent cells from the knockout strain, then isolated genomic DNA containing a selectable megaplasmid from a donor strain. Using this approach, I successfully restored the megaplasmid in the knockout background.

Future work will test whether this complemented strain regains the ability to induce metamorphosis in H. elegans, as well as whether introducing the megaplasmid into a naturally non-inducing strain can confer this ability. This study contributes to uncovering nove

ORAL PRESENTATION

Speaker

S **Shivani Mahesh**
Lead Presenter | A - 2

A - 3: Business, Economics & Public Administration (U) 1

9:00 AM – 11:00 AM | Location: Lipinsky Hospitality Suite (SSW 1608)

UNDERGRADUATE

ORAL PRESENTATION

Speakers

C **Charlie Wolf**
Lead Presenter | A - 3

H **Hayden Hughes**
Lead Presenter | A - 3

I **Irahi Salazar**
Lead Presenter | A - 3

J **Javier Barajas**
Lead Presenter | A - 3

M **Matthew Philbin**
Lead Presenter | A - 3

Oversight and Regulations of Sober Livings in San Diego County

9:15 AM – 9:35 AM

UNDERGRADUATE

This qualitative research project examined how sober living homes (SLHs) in San Diego County are regulated, managed, and experienced by those who live and work within them. Despite their importance as transitional, substance-free housing for individuals in recovery and reentry, SLHs in California continue to operate with minimal oversight or standardized regulation. The purpose of this study was to identify existing policies and management practices, document how they function in real-world settings, and capture the lived experiences of residents and workers directly involved with these programs.

Using respondent-driven and snowball sampling, we conducted nearly 35 semi-structured interviews with current and former residents, internal workers (including house managers and staff), and external professionals such as probation and parole officers, caseworkers, and other service providers. Interviews were conducted both virtually and in person, recorded or documented with consent, transcribed, and analyzed thematically to identify recurring patterns and key themes across participant groups.

Findings revealed substantial variability in how SLHs are operated and overseen, as well as inconsistencies between existing policy frameworks and everyday practices. Participants described the powerful role SLHs can play in supporting recovery and reintegration when effectively managed, but also noted risks stemming from the lack of regulation, training, and accountability. Many expressed concern that inadequate oversight not only undermines recovery outcomes but also affects community safety and trust.

This research underscores the urgent need for clearer oversight mechanisms and evidence-based policy reform to ensure that SLHs fulfill their intended purpose of promoting long-term recovery, safety, and stability for residents and the broader community in San Diego County.

ORAL PRESENTATION

Speaker

Charlie Wolf

Lead Presenter | A - 3

CrossroadsSD: A new tool to solve an age-old problem

9:35 AM – 9:55 AM

HIGH SCHOOL - WORKING WITH SDSU FACULTY

CrossroadsSD (crossroadssd.com) is a new digital tool that has joined the fight against homelessness in San Diego. CrossroadsSD is a publicly accessible digital database that contains all of San Diego's homeless resources, and has already made an incredible impact since its launch this past summer. I developed the website after volunteering with homelessness service providers and seeing that the most common way of distributing homeless resources was via large, outdated paper packets. A shift to a digital website allows organizations to easily update their information without relying on unchangeable paper packets. Furthermore, CrossroadsSD allows those in need to access a larger quantity of resources without the hassle of having to work with giant, complicated handouts. As part of a distribution strategy, over 1,000 printed QR codes (directing users to crossroadssd.com) were given to case managers, who then handed them out to their own clients on the streets. To increase the number of resources available in the database, CrossroadsSD sought to reach smaller services. Bigger shelters and providers are easier to find, but smaller ones often have a tiny digital footprint, making them much more difficult to find. To solve this, I have not only attended a dozen homeless care events to advertise and test the site, but have also been featured on NBC News, ABC News, and local podcasts to meet organizations and get them on the site. A "Contact/Give Feedback" page on the site also allows organizations and individuals to get in touch. Since launching, over 50 organizations have partnered with us, and we have helped over 5,000 individuals make over 36,000 connections. With proven success in San Diego, CrossroadsSD is now looking towards Los Angeles and beyond to bring this replicable platform to other cities to assist with their own homeless crisis.

ORAL PRESENTATION

Speaker

Hayden Hughes

Lead Presenter | A - 3

Park Safety Evaluation Through Fear Mapping

9:55 AM – 10:15 AM

UNDERGRADUATE

The project would be conducted at a local park located in Brawley, California known as Cattle Call Park. The theory and goal of this project are to find out whether females found the park to be unsafe more than males would and as well as show that the park could still use improvements around certain areas. The main method that was used to conduct the survey was through fearmapping with handing out physical copies to people and answering a few basic questions such as gender and what specific times that the individual would attend the park and marking what areas of the park felt were unsafe by circling the area. The results of the survey showed that women found the park to be more unsafe than males with the markings and also showed that the park could still use an improvement to help the park provide a safer environment for the local people, such as more lighting in parking lots and walkable areas. Overall, the results supported my hypothesis on women finding the Cattle Call Park being unsafe more than males but also showed that the park could still use some improvement around certain areas that could also benefit the community with working on enforcing curfew policies and though encouraging use of the park for more local events but would also encourage people to keep the park cleaner as well.

ORAL PRESENTATION

Speaker

Irahi Salazar

Lead Presenter | A - 3

The Ramp of Risk

10:15 AM – 10:35 AM

UNDERGRADUATE

This study examines safety, crime, and environmental risk conditions at the southbound I-5 on ramp at 17th and J Street in San Diego's East Village. The site presents overlapping dangers caused by poor freeway ramp design, recurring encampments, and elevated neighborhood crime. A satellite review shows encampments positioned directly along the ramp edge, with no directional signage or lane guidance. Drivers are forced to make quick choices, leading to risky merging behavior. East Village has the highest rates of violent crime, property crime, and crimes against society in the downtown region, according to crime data from the San Diego Police Department utilizing the NIBRS reporting system. The conditions at the site are consistent with the All Other Offenses category, which includes drug activity, fires, disorderly conduct, and trespassing on interstate property.

A mixed-methods approach was used, including field observations, satellite imagery, crime mapping, and a survey of 53 residents. Field notes recorded 37 last-second lane changes, 9 near misses or hard braking incidents, and 26 pedestrians crossing the ramp, even though the area is not designed for foot traffic. Social disorder was also observed, such as a suspected drug exchange and constant trespassing through the freeway zone. Survey results supported these findings. All 53 residents said the area is dirty and has high crime, and 39 said that the City

2

should add clearer lane signage. Many residents described the area as unsafe, confusing, and neglected.

Symbolic interactionism is used to understand the ramp as a danger zone that is molded by how the community views disorder and criminality. Urban Political Ecology demonstrates how hazardous conditions persist due to a lack of coordination between Caltrans, the City of San Diego, and the San Diego Housing Commission. Conditions at this location have not changed, despite a 2025 agreement that permits the City and Caltrans to jointly clean the freeway ramps. Following cleanup notices, encampments reappear nearly instantly.

ORAL PRESENTATION

Speaker

Javier Barajas

Lead Presenter | A - 3

Skate Safety on Hilltop Way: An Empirical Approach Toward Commuter Safety on SDSU Campus

10:35 AM – 10:55 AM

UNDERGRADUATE

The prevalence of skating and skate-positive infrastructure on the SDSU campus has brought with it frequent skater-pedestrian collisions and concerns over commuter safety, particularly during class transition periods that often see skaters, pedestrians, and vehicles sharing roads. Hilltop Way is specifically dangerous due to its high slope, blind corner, and focal location, becoming a natural bottleneck between parts of campus during an average school day. While a variety of solutions to this have been considered, they lack an empirically-informed perspective to effectively identify and target the problem. This study aims to develop an empirical process to analyze skate safety and congestion data on college campuses, centered around recorded footage and computer vision data alongside a taxonomy of commuter classifications, and applies it to Hilltop Way, supported additionally by qualitative analysis. By systematically examining the understudied dynamics between commuters, this research hopes to inform policy solutions to improve campus safety and enhance commuter efficiency.

ORAL PRESENTATION

Speaker

Matthew Philbin

Lead Presenter | A - 3

A - 4: Education (U) 1

9:00 AM – 11:00 AM | Location: Park Boulevard

UNDERGRADUATE

ORAL PRESENTATION

Speakers

Camilla Ojeda

Lead Presenter | A - 4

Destanee Jordan-Geraldo

Lead Presenter | A - 4

Miriam Ortiz

Lead Presenter | A - 4

Zoe Linden

Lead Presenter | A - 4

Encouraging Spontaneous Interactions between Mainstream and Special Needs Students

9:15 AM – 9:35 AM

UNDERGRADUATE

There is a plethora of research papers seeking to improve the comprehension of social cues for those with intellectual disabilities. However, fewer of those papers seek to do the reverse, to understand the responsibility of inclusion that can be placed on mainstream students. Even fewer studies surrounding interactions in mixed groups occur during high school, a crucial stage of life where students learn the skills they will take into the workplace and the wider world. In fact, the primary factor holding back mainstream students from engaging in mixed groups is themselves. My presentation seeks to determine what these communication barriers are, and how they can be addressed by their communities. Through various data methods, it's evident that the development of peer-mediated skills in a controlled environment is highly effective at boosting the quality of spontaneous interactions in mixed groups. Therefore, mainstream students should bear the responsibility for initiating spontaneous interactions and be taught a proper framework for communication throughout middle and high school programs. Special education students deserve to be included in every aspect of education, especially social spaces where most relational learning takes place. Schools can start by fostering programs to shift students' mindsets regarding mixed group interactions.

ORAL PRESENTATION

Speaker

C **Camilla Ojeda**

Lead Presenter | A - 4

Beyond Primary Education: How Students Use Social Actions/Interactions to Create & Sustain Identity

9:35 AM – 9:55 AM

UNDERGRADUATE

This ethnographic study uses students' actions and interactions to examine and gain a greater understanding of the role primary education plays in students' abilities to form and nourish their developing identities. From this study, we learn that primary education does more than just teach students their A, B, C's, it nurtures social development.

ORAL PRESENTATION

Speaker

D **Destanee Jordan-Geraldo**

Lead Presenter | A - 4

Presentation Withdrawn

9:55 AM – 10:15 AM

UNDERGRADUATE

ORAL PRESENTATION

Speaker

P **Presenter Withdrawn**

Impacts of the Wetland Unit Project Regarding Well-being and Green Spaces across Students of Color's...

10:15 AM – 10:35 AM

UNDERGRADUATE

Green spaces in urban communities can support thriving communities. However, the green spaces across communities of students of Color are not always as green as they should be. In this study, I explored how a group of 2nd and 3rd graders engaged with a nearby creek, how it benefited them and what they wanted to change. At the creek, students noticed that there was a thriving ecosystem as well as some pollution. My research questions are:

1. Can students of Color benefit from healthy green spaces across their community? and 2) How do green spaces affect students of Color's emotions?

I analyzed the 2nd and 3rd grade Wetlands book which students created to share with their mayor and recorded interviews from the Wetlands Unit Action. My findings are 1) students have fun, care for animals, and love nature, and 2) the students also identified that the animals live in a polluted area. This made them sad but also it is encouraging to advocate for their communities. Students of Color need opportunities to provide care for the green spaces across their communities and need to learn how to advocate and implement resources to help their communities thrive. Educators should support students in spending time in natural environments because it can support them in thriving.

ORAL PRESENTATION

Speaker

M **Miriam Ortiz**

Lead Presenter | A - 4

Place-based science and Local Connections to broader STEM and environmental Ideas in a Wetland Acti...

10:35 AM – 10:55 AM

UNDERGRADUATE

Science curricula in the primary classroom struggle to connect with place-based learning in ways that help students connect local ideas and environments to larger STEM concepts. My research questions are:

How does locally learning science impact students' broader understanding of science concepts?

What are the balances and constraints of learning science in a place-based wetland unit?

I analyzed field notes, local community surveys, and the Second- and Third-Grader Wetland Book. These sources highlighted the disconnect between place-based science (i.e., field trips to local creeks and ecosystems) and STEM and science curricula developed at a broader international level. By participating in the wetland action unit, students were able to connect larger ideas to their local community and communicate those local science concepts to their broader community. The students aimed to educate their community about what is in the creek to achieve a stronger community care for the creek. This wetland action showed how textbooks, as the only form of science instruction, are deficient because they does not allow students to make connections between larger STEM ideas and local ecosystems. Students should learn how to connect science learning in the general sense with place-based learning (i.e, learning and interacting with local environments and ecosystems). Learning about nature is essential for children because being knowledgeable about the creek is the first step to preserving its beauty. Students who participated in the unit recommended park clean-up and having a spokesperson or ecologist speak on the creek and its importance in the larger ecosystem. Incorporating place-based learning alongside textbooks and online curriculum is essential in primary school for students to resonate with the curriculum and apply it to their daily conservation efforts.

ORAL PRESENTATION

Speaker

Z **Zoe Linden**
Lead Presenter | A - 4

A - 5: Engineering and Computer Science (U) 1

9:00 AM – 11:00 AM | Location: Pride Suite

UNDERGRADUATE

ORAL PRESENTATION

Speakers

D **Damaris Menendez**
Lead Presenter | A - 5

G **Gianni Grimm**
Lead Presenter | A - 5

V **Varun Aruldas**
Lead Presenter | A - 5

Scaling Laws of Enzyme Catalysis: Investigating Relationships Between Enzyme Mass and Speed

9:15 AM – 9:35 AM

UNDERGRADUATE

In biological reactions, enzymes act as catalysts to accelerate energetically favorable reactions by lowering the activation energy barrier between the reactants and the products. This research project aims to investigate whether a quantitative relationship exists between enzyme mass and the reduction in activation energy during catalysis. Published kinetic data from peer-reviewed literature and biochemical databases were compiled and analyzed across multiple enzyme systems. Rate constants for uncatalyzed reactions at various temperatures and pH values were determined using known activation energies and reported rate constants. These values were compared with corresponding enzyme-catalyzed rate constants at similar temperatures and pHs to determine the change in activation energy attributed to the enzyme. Enzyme masses were extracted from literature sources or calculated based on known structure or composition of the enzyme. The resulting activation energy differences were plotted against enzyme mass to assess potential linear correlations. This methodology was applied across diverse enzyme families spanning a broad range of molecular weights to evaluate the generality of the observed trends. Understanding this relationship enhances knowledge of enzymes' energetic capacity and the factors that influence the functional durability of enzymes. Results so far have demonstrated a partial correlation with the enzyme groups analyzed.

ORAL PRESENTATION

Speaker

D **Damaris Menendez**
Lead Presenter | A - 5

Sustainable Site Prep

9:35 AM – 9:55 AM

UNDERGRADUATE

This project explores how sustainable site preparation; integrating soil mechanics, stormwater management, and intentional landscaping; can improve construction outcomes in San Diego County. San Diego's unique soil conditions, wildfire exposure, steep terrain, and strict stormwater regulations create challenges that traditional grading and foundation practices do not fully address. Using regional case studies such as Civita and Mast Park, along with federal and state regulatory frameworks including SWPPP and BMP standards, this project identifies best practices that reduce environmental impact, prevent rework, improve compliance, and extend the performance of built environments.

From this research, a Best Value bid framework was developed for the Association of General Contractors (AGC) San Diego that helps contractors integrate sustainability credentials, similar-site experience, and workforce training into early project phases. This framework demonstrates that sustainability in construction is not just regulatory, it is operational, economic, and strategic.

As someone who began working the land as a first-generation rancher and later trained in construction management and environmental studies, this work represents both technical inquiry and personal direction. Long-term, it informs the vision behind a future business, Rattlesnake Mountain Movers, focused on responsible grading, resilient site development, and earthwork that respects the landscape it shapes.

ORAL PRESENTATION

Speaker

G **Gianni Grimm**
Lead Presenter | A - 5

Comet Particle Image Simulation for Star Tracker Development

9:55 AM – 10:15 AM

UNDERGRADUATE

Star trackers are one of the optical ways to determine the orientation of spacecraft using stars as reference points. In recent years, there has been a push to make star trackers faster and more reliable, especially in unique environments like the space around comets. Comets produce water vapor and dust particles due to the comet surface melting from solar exposure. These particles can cause star trackers to give incorrect orientation data, because a particle can look like a star if it is close enough to the tracker. This research is to create software that generates star tracker images as collected by spacecraft within the dust environment of a comet coma, to aid in the development of processing algorithms to handle dust particles within star tracker images. Dust particle dynamics are simulated and the particle positions relative to the camera are projected onto the camera sensor. The brightness of particles in the image are computed based on the number of photons reflected from each particle into a corresponding camera pixel. To calculate the brightness of the particles, both size and composition (water and forsterite) are considered. The current version of the simulation software is able to generate images of the stars and comet dust environment with blurring effects due to camera movement, with a total processing time of 5-8 seconds. Creating this software will be helpful in understanding how comet dust environments affect star tracker photos and in developing ways to remove the dust environment from the photos to improve star tracker accuracy. This research allows spacecraft to be more reliable and autonomous within extreme comet environments, increasing the scientific return of these missions.

ORAL PRESENTATION

Speaker

V **Varun Aruldas**
Lead Presenter | A - 5

A - 6: Health Nutrition and Clinical Sciences (U) 1

9:00 AM – 11:00 AM | Location: Metztli

UNDERGRADUATE

ORAL PRESENTATION

Speakers

A **Anthony Quiroz**
Lead Presenter | A - 6

A **Asensa Sadiki**
Lead Presenter | A - 6

B **Bobbi Roxanne**
Lead Presenter | A - 6

D **Daniela Rodriguez**
Lead Presenter | A - 6

N **Noah Lemercier Barthel**
Lead Presenter | A - 6

Engagement, barriers, & facilitators of health-related social needs screening in pregnant patients

9:15 AM – 9:35 AM

UNDERGRADUATE

This study, conducted by Imperial County Clinical Research Network, aims to identify Social Determinants of Health relevant to rural pregnant patients by evaluating the reach, feasibility, and completeness of data collected using social screening tools. The objective of our presentation is to describe the engagement and assess potential barriers and facilitators to screening of health-related social needs (HRSN) among pregnant patients at Innercare, located in Imperial County, CA.

Screening for HRSN will identify barriers and reduce health inequities by letting researchers and healthcare providers identify causes of adverse pregnancy outcomes. As this study is ongoing, the research team continues to recruit, screen, enroll, and survey participants via REDCap, assisted by a research assistant team of two SDSU main campus students, two SDSU Imperial Valley students, and one Innercare research assistant. Participants are contacted and screened by phone calls using Zoom Workplace, then randomized into one of three survey data collection modalities. Surveys are completed via phone call with either a research assistant, an Innercare outreach team member, or self-administered through a link.

Our study started in May of 2025 and our goal is to recruit and randomize 600 Imperial County postpartum patients. Eligible participants pregnancy must have concluded between 7/15/2024 and 12/31/2025, had at least one prenatal care visit at Innercare between 9/15/2023 and 12/30/2025, and currently have a residence in the U.S. Participants are ineligible if they are younger than 18 years old, do not speak and read English/ Spanish, their most recent pregnancy ended with an elected pregnancy termination, had a molar or ectopic pregnancy.

Our current findings show that those randomized into the self-administered modality had a completion rate of 80%, the RA interview modality had a completion rate of 90%, and the outreach interview modality had a completion rate of 95%. Our findings will inform future policies and procedures for pregnancy care and understanding patients' social need

ORAL PRESENTATION

Speakers

A **Anthony Quiroz**
Lead Presenter | A - 6

A **Arely Ortega**
Co-Presenter | A - 6

Where are SNAP/CalFresh benefits used? Exploring responses from the People's Produce Mobile Market

9:35 AM – 9:55 AM

UNDERGRADUATE

Project New Village (PNV) is a grassroots nonprofit centered on increasing food access and community empowerment in Southeastern San Diego. PNV started the People's Produce Mobile Farmer's Market (PPMFM) in 2022, to make fresh produce easier to access. The PPMFM serves Southeastern San Diego communities to increase food sovereignty. SNAP benefits are monetary stipends provided to eligible households <130% poverty line and can be used to purchase food in SNAP-authorized stores. About 5 million California households receive SNAP benefits to improve their food security. To expand accessibility, the PPMFM accepts SNAP. Voluntary English and Spanish surveys were collected at PPMFM locations from August 2024 to October 2025; participants received a $10 token incentive. The analytic sample only included SNAP participants (N=1,763). Survey items covered demographics, awareness that SNAP is accepted at PPMFM, and typical SNAP shopping locations. Analyses included descriptive statistics, Chi-squared tests,and binary logistic regression models in SPSS v31. Overall, 75.7% were aware that SNAP benefits were accepted at PPMFM. The sample was 71.2% female, 46.4% were over age 50, 30.5% were Hispanic/Latino, and 11.8% had less than High School education. SNAP was used at most often at grocery stores (49.1%) and supermarkets/superstores (40.5%), with a few using it at farmers' markets (4.8%), convenience stores (3%), corner stores (1.7%), and specialty stores (0.9%). Chi-square tests showed sex was significantly associated with SNAP awareness: 81.1% of men and 73.4% of women were aware ($p<0.001$). Ethnicity was not significantly associated with awareness. Logistic regression indicated participants ages 34–41 were 45% (95% CI: 0.27-0.75,$p=0.002$) less likely to be aware, compared to those ages 18–25. Higher educational attainment was positively associated with awareness. Most were aware PPMFM accepts SNAP benefits. Most participants used SNAP at supermarkets and grocery stores, while only 4.8 percent used benefits at farmers' markets.

ORAL PRESENTATION

Speakers

A **Asensa Sadiki**
Lead Presenter | A - 6

O **Olivia Dark-Morrell**
Co-Presenter | A - 6

Lysosomal enhancement for the treatment of Neiman Pick Disease

9:55 AM – 10:15 AM

UNDERGRADUATE

Niemann-Pick Disease Type C (NPC) is a rare genetically inherited lysosomal storage disorder caused by NPC1 or NPC2 gene mutation. These mutations affect the intracellular lipid transport causing progressive accumulation of cholesterol and lipids within lysosomes in cells, including microglia. Microglia are the brain resident macrophages important in clearing debris in the brain, heavily relying on lysosome functionality. Impaired functionality of microglia can lead to protein accumulation and neuroinflammation. Such lipid accumulation in NPC leads to lysosomal dysfunction and illuminates a contribution to developmental and progressive neurological decline. We have discovered a compound that can enhance the acidity of the lysosomes in microglia. This discovery prompted us to investigate whether similar lysosomal enhancement strategies could positively benefit lysosomal storage diseases, specifically NPC. We will produce patient-derived microglia (iMG) utilizing a pair of human induced pluripotent stem cells (iPSC) isogenic for I1061T, the most common mutation in NPC. We will first characterize the iMG to understand the measurable deficits seen in the NPC line, such as lysosomal acidity, lipid accumulation, mitochondrial membrane potential, and proinflammatory cytokine release. We will then test our compound on NPC microglia to understand whether enhancing lysosome acidity can alleviate dysfunction. Together, our findings would help us understand whether lysosomal enhancement can be a viable therapeutic strategy for NPC and other lysosomal storage diseases that affect the central nervous system.

ORAL PRESENTATION

Speaker

B **Bobbi Roxanne**
Lead Presenter | A - 6

Characterizing the Study Population: Demographics of Pregnant Patients in the Imperial Valley

10:15 AM – 10:35 AM

UNDERGRADUATE

This study conducted by the Imperial County Clinical Research Network(ICCRN) aims to examine the best survey data collection modality to identify social determinants of health that would be relevant to rural pregnant patients at Innercare located in the Imperial Valley, CA. The objective of this presentation is to describe the demographic profile of the study participants to assess how well they represent the target population and to improve the understanding of pregnant patients living in the Imperial Valley, which will help with interpreting the study findings. The recruitment process began in May 2025 and is still ongoing. This study aims to recruit a systematic sample of 600 adult postpartum patients that were previous patients from Innercare. The eligibility to participate in this study included: have a residency in the U.S; able to speak English or Spanish; had a pregnancy that concluded between 7/15/2024 and 12/31/2025; had at least one prenatal care visit between 9/15/2023 and 12/30/2025 at Innercare. Participants were excluded if they are younger than 18 years old or the most recent pregnancy ended in an elective termination, molar pregnancy, or ectopic pregnancy. Eligible participants were randomly assigned and asked to complete a survey in one of three ways: over the phone with a research assistant from ICCRN, through a self-administered link, or over the phone with an Outreach Team Member from Innercare. The survey would ask patients questions about demographics; social determinants of health; self-related health; health behaviors; social support; and adverse pregnancy outcomes. Based on the currently enrolled participants (N=200), the mean age of participants was 30 (SD=5.5). There were 94% participants who were Hispanic and were born in the United States (58.8%). Slightly over half of the participants have a high school diploma/GED or less (57.4%). The majority of the participants were not working(65.2%) and were insured through public insurance (85.9%). Most (64.5%) of the participants stated that they preferred Spanish as their primary language.

ORAL PRESENTATION

Speaker

D **Daniela Rodriguez**
Lead Presenter | A - 6

Hematopoietic Stem Cells Gene Therapy for Mucopolysaccharidosis Type IIIC

10:35 AM – 10:55 AM

UNDERGRADUATE

Mucopolysaccharidosis type III (MPSIII) also known as Sanfilipo Syndrome is a rare genetic lysosomal storage disease that causes a build up of glycosaminoglycans (GAGs) due to a mutation in one of the four enzymes in the lysosome. The herperan sulfate aggregates and as a result, children often miss developmental markers such as standing or talking and suffer from early onset dementia. Other markers are inflammation of the bladder and immune response in the cell due to the stress placed on the lysosome. Often first diagnosed as autism, children diagnosed with MPS III have a life expectancy ranging from 11 years old to 22 years old. Previous literature has shown that tunneling nanotubes have been created between cells to distribute lysosomes between cells. This would mean that there is potential for wild type copies of the lysosome to be introduced to the cell and restore the cells lysosomal function. Our research focuses on a theoretical treatment for MPS III using hematopoietic stem cells to provide cells with functioning copies of the lysosomal enzymes into the mutant cells and restoring the cells ability to breakdown GAGs. We are examining this treatment in mice to measure the ability of the cells to integrate the new lysosomes into mutant cells. This is achieved by studying the difference in behaviors in mice that have been treated with the stem cells as well as checking inflammation levels in explanted organs. Live cells will also be cultured to attempt to capture if tunneling nanotubes form to confirm our theoretical hypothesis.

ORAL PRESENTATION

Speaker

N **Noah Lemercier Barthel**
Lead Presenter | A - 6

A - 7: Humanities, History, Literature, & Philosophy (U) 1

9:00 AM – 11:00 AM | Location: Aztlan

UNDERGRADUATE

ORAL PRESENTATION

Speakers

Alyssa Godwin
Lead Presenter | A - 7

Anika Balint
Lead Presenter | A - 7

Jane Straughn
Lead Presenter | D - 7

Birdy Wilbon
San Diego State University

Dani Grant
Lead Presenter | A - 7

Dehrich Moore
Lead Presenter | A - 7

“Betty Crocker: The Liminal Figure That Shaped American Propaganda.”

9:15 AM – 9:35 AM

UNDERGRADUATE

This research analyzes the fictional identity of General Mills’ persona, Betty Crocker, addressing how the character that warmed kitchens across the nation throughout the 20th century also functioned as an original and revolutionary piece of American propaganda. The fictional persona of Betty Crocker, as created by General Mills in 1921, was developed from the very beginning as an intentional piece of American propaganda, although this only became evident in the post-World War II era as a result of the sociocultural gender crisis.

Current scholarly discussion on this topic reveals a shocking absence of analysis of how Betty Crocker functioned as both a liminal figure and a creation of targeted propaganda. By existing in the realm of liminal space, Crocker serves as an ambiguous model that can operate between the real and the abstract, allowing a certain freedom and the ability to manipulate and influence audiences in ways a physical figure cannot. It was in her position as a liminal figure, existing in the grey area between reality and fiction, that Crocker was molded to deliberately adjust the realities of American housewives. While scholars agree that Crocker worked as a model of fluidity in terms of public messages targeted to American housewives and the domestic sphere, there is academic silence on how Crocker’s origins in the flour-dusted recipe notecards and questions of ordinary American women served as the root of a century-long propaganda campaign.

Through textual analysis of the original publications under the name “Betty Crocker” and broader post-structural analysis, this research seeks to establish the importance of the early presentation of Crocker by General Mills, dating back to her very first publication in 1933. By recognizing the historical context in which the fictitious identity was created and flourished, as well as the reemergence of traditional gender conformations throughout the postwar era, the propagandistic motives and actions behind the seemingly wholesome all-American identity emerge.

ORAL PRESENTATION

Speaker

Alyssa Godwin
Lead Presenter | A - 7

Rigging the Super Bowl: Kendrick Lamar and the Spectacle of the Halftime Performance

9:35 AM – 9:55 AM

UNDERGRADUATE

This research paper rhetorically analyzes the ways that Kendrick Lamar’s 2025 Super Bowl halftime performance powerfully critiqued the “American Game” through spectacle storytelling, especially with his use of choreography, transitions, and lyrics. Our research utilized Debord’s theory of spectacle, along with anti-racist and ideological frameworks in order to analyze how Lamar creates a call to action to stand up against hegemonic systems in favor of cultural revolution. The theory of spectacle analyzes social relationships through observing the way in which capitalism is used to distract society from creating revolutionary change. Applying these methods, we specifically analyzed Lamar’s curated use of choreography, narrated transitions, and lyrics within the specific cultural and political climate in which it was aired. Our analysis contributes to rhetorical research by examining how performances can strategically utilize spectacle theory in order to unify and persuade their audiences.

ORAL PRESENTATION

Speakers

Anika Balint
Lead Presenter | A - 7

Jane Straughn
Lead Presenter | D - 7

The Voice of Disability: How Still/Here by Bill T. Jones Reveals the Exclusion of Disability in Art

9:55 AM – 10:15 AM

UNDERGRADUATE

This research repositions the 1994 dance Still/Here produced by the Bill T. Jones/Arnie Zane Company as a work of disability art exemplifying the silencing of disabled voices through its contemporary cultural war. Built from Survival Workshops with voluntary terminally-ill participants, Jones's dance investigated questions of life and death driven by his own mortality as a HIV+ gay Black man, the death of Zane from AIDS, and a meeting with a breast cancer activist. New Yorker reviewer Arlene Croce's mischaracterization of Still/Here in "Discussing the Undiscussable" painted the work as "victim art" performed by people audiences must pity, placing it in the culture war while claiming it contributes to the degradation of art. Her non-review, fueled by the culture war, silences the disabled voices of Still/Here.

Two divergent trends emerged in writings contemporary to Still/Here and dance literature. Immediate responses to the non-review either laud Croce as revolutionary, or defend Still/Here by ridiculing Croce, removing Jones and his work from the conversation supposedly about it. Dance literature instead tends to position Still/Here in dance history and examine its impact on the danceworld through its making process. A less common trend explores racial and social bodies in dance through Still/Here. This research expands on the last trend by pushing Still/Here into the disabled body. It also draws on the other trends to contextualize dance and the culture wars.

This research engages in interdisciplinary analyses joining history and dance. Post-structural analysis sets the two medias in a disabled/abled conversation with the Women Studies concept of biopower. Textual analysis is utilized to examine "Discussing the Undiscussable" and writings on it and Still/Here. A disability studies lens is overall applied to understand disability art trends. Movement analysis emerges as a tool to explore the dance itself. A panel with Jones and company members and interviews I conducted with past members give voice to the silenced.

ORAL PRESENTATION

Speaker

B

Birdy Wilbon

San Diego State University

Mrs. Franklin's Economy of Letters: Socioeconomic Networks and Deborah Read's Correspondence

10:15 AM – 10:35 AM

UNDERGRADUATE

This research explores the exchange of information and goods within American colonies, as well as between the colonies and England, through correspondence networks such as Deborah Read Franklin's. Colonial gender historians have recently unearthed evidence of informal trade networks managed by colonial women in the 17th and 18th centuries. Visualizing the flow of tangible and intangible resources between Read Franklin and her correspondents illustrates the diversity, range and significance of these networks, as well as the importance of women's correspondence to pre-Revolutionary and Revolutionary American scholarship.

Through the examination of sixty-one letters written to Read Franklin by parties other than her common-law husband, Benjamin Franklin, the research positions her within a socioeconomic network extending across the social strata of 18th century America and spanning the Atlantic Ocean. Read Franklin's non-marital correspondence remains unpublished and largely ignored by scholars; likewise, the network outlined by her letters exemplifies the long overlooked (yet vitally important) services women provided to the American colonies. Additionally, her correspondence contains valuable details regarding the social and economic upheaval following the Seven Years War, and insights into the variety of roles women like Read Franklin played in the interbellum period preceding the American Revolution.

Through careful textual analysis and data visualization, this research maps out Read Franklin's correspondence and situates her network within the context of 18th century America and England. Using a visual approach that facilitates engagement with the source material, it provides real, verifiable evidence of the existence of informal, women-centered trade networks in pre-Revolutionary America. It also highlights the detrimental effects that silenced histories, like Read Franklin's, have on historic scholarship.

ORAL PRESENTATION

Speaker

D

Dani Grant

Lead Presenter | A - 7

A Divided Orchestra

10:35 AM – 10:55 AM

UNDERGRADUATE

Music was one of the most influential mediums through which Americans experienced, interpreted, and contested the Civil War. Serving as both entertainment and mass communication, Civil War songs circulated across camps, cities, and homes, carrying emotional and ideological weight. This paper argues that Civil War music exposed the nation's fractured identity by expressing competing Union and Confederate visions of loyalty, future, and self-definition. The paper also emphasizes how African American musicians in particular used song to express emancipation, belonging, and new visions of freedom. Songs such as "Battle Cry of Freedom" and "The Bonnie Blue Flag" reveal layered constructions of allegiance, whether to federal union, state sovereignty, or local community. Wartime compositions like "We Are Coming, Father Abraham" and "God Save the South" showcase how both sides used music to imagine different national destinies—one of restoration and unity, the other of independence and divine sanction. Furthermore, performances and lyrics reflecting Union satire and Confederate defiance, from "The Why and Wherefore" to "I'm a Good Ol' Rebel," illustrate how music became a means of shaping and asserting identity. Drawing on the work of Christian McWhirter, Irwin Silber, and Mary Ellison, this study situates Civil War songs within broader cultural and political discourse. Together, these songs demonstrate that America's conflict over sovereignty, justice, and national meaning was sung as fervently as it was fought, making music a central force in defining what the United States was—and what it could become.

ORAL PRESENTATION

Speaker

D **Dehrich Moore**
Lead Presenter | A - 7

A - 8: Physical and Mathematical Sciences (U) 1

9:00 AM – 11:00 AM | Location: Mata'yuum

UNDERGRADUATE

ORAL PRESENTATION

Speakers

E **Elizabeth Chai**
Lead Presenter | A - 8

F **Faith Poutoa**
Lead Presenter | A - 8

M **Mateo Contreras**
Lead Presenter | A - 8

N **Natalia Smith**
Lead Presenter | A - 8

T **Thea Enache**
Lead Presenter | A - 8

Photocatalytic Upcycling of Waste Carbon and Nitrogen into Organonitrogen Chemicals

9:15 AM – 9:35 AM

UNDERGRADUATE

C–N bond formation plays an important role in producing value-added chemicals, yet many existing methods still rely on high energy input, involvement of toxic chemicals, or harsh reaction conditions. In contrast, photocatalysis provides a sustainable alternative by using visible light to drive redox reactions for small molecule activation. In this work, CdSe quantum dots (QDs) were used as a photocatalyst to promote C–N coupling reactions using nitrate, a waste chemical, as the nitrogen source.

In our system, ethylene glycol (EG) and nitrate were combined with CdSe QDs under visible-light irradiation. EG is converted into reactive carbon intermediates, while nitrate is reduced to nitrogen species intermediates, the coupling of those two intermediates effectively produce C–N bonds. Together, these processes lead to the formation of nitrogen-containing organic products under mild, oxygen-free conditions. Meanwhile, proton reduction also occurs, generating green hydrogen (H_2).

This study demonstrates a simple photocatalytic route for upgrading less value-added small molecules into valuable C–N bond products. The results highlight the potential of quantum dots as efficient catalysts for sustainable chemical synthesis.

ORAL PRESENTATION

Speaker

E **Elizabeth Chai**
Lead Presenter | A - 8

Schlieren Imaging of Ultrasound Wave Interference Using a Pulsed LED

9:35 AM – 9:55 AM

UNDERGRADUATE

This study uses schlieren photography to visualize the interference patterns of ultrasonic sound waves in air. By capturing variations in a region's refractive index, direct, real-time images of wave interactions are produced. Our system enhances the understanding of acoustic phenomena and demonstrates the feasibility of low-cost schlieren setups for educational and research applications. This work is supported by a grant from the National Institute of General Medical Sciences of the National Institutes of Health: SDSU MARC 1T34GM149430

ORAL PRESENTATION

Speaker

Faith Poutoa

Lead Presenter | A - 8

Employing classical molecular dynamics to guide functional improvements in heme-based de novo enzyme...

9:55 AM – 10:15 AM

UNDERGRADUATE

De novo enzyme designs can be significantly improved by performing classical molecular dynamics (MD) simulations, which help identify structural patterns linked to enhanced function. In this study, we focus on a cyclopropanation reaction catalyzed by a heme cofactor enzyme. Unlike previous scaffolds for this reaction, which typically contain four helices and are manually designed, the WH4 and WH12 variant scaffolds feature six helices generated using an AI-based model called Chai-1. Experimental data for the parent enzymes show yields above 94%, and we now aim to analyze 20 computationally designed mutants to better understand how their dynamic behavior correlates with performance. Previous studies have shown a correlation between root mean square fluctuation (RMSF), which describes flexibility, and overall enzyme efficiency: lower RMSF usually indicates better performance.

ORAL PRESENTATION

Speaker

Mateo Contreras

Lead Presenter | A - 8

Astrometric Measurement of Triple Stars WDS 00485+3924 MLB 4ABC

10:15 AM – 10:35 AM

UNDERGRADUATE

By utilizing the Las Cumbres Observatory Global Telescope Network to collect CCD imaging and astrometric measurements of the triple star WDS 00485+3924 MLB 4ABC, to determine if the components were physical. Compared with previous measurements over the past century, including those obtained with the GAIA space telescope, we concluded that C is not gravitationally interacting with A and B, and that it is inconclusive whether A and B are physical. This result is given by the position angles and separation measured, respectively, 099.3±0.41 degrees and 6.73±0.023 arcseconds for AB, then 175.2±0.13 degrees and 13.34±0.056 arcseconds for the AC pair.

ORAL PRESENTATION

Speaker

Natalia Smith

Lead Presenter | A - 8

Integrating within-host viral dynamics with between-host transmission of SARS-CoV-2

10:35 AM – 10:55 AM

UNDERGRADUATE

Quantifying how viral replication within infected individuals drives transmission between hosts remains a fundamental challenge in infectious disease epidemiology. In this study, we develop a multiscale modeling framework that links within-host viral dynamics to between-host transmission risk. Fitting our model to experimental viral-load data from ferret transmission studies captures characteristic shedding trajectories and quantifies key kinetic parameters governing viral production, clearance, and infectiousness. We translate these dynamics into transmission risk using a probabilistic model that accounts for the instantaneous infectious dose delivered to recipients, depending on viral shedding intensity, distance-dependent dispersion, exposure duration, and deposition at recipient target cells. The estimated risk from our model is consistent with the observed transmission pattern in ferrets. Our framework reveals how within-host parameters shape population-level spread. This mechanistic bridge between intracellular biology and epidemiological outcomes enables quantitative prediction of who becomes infected, when transmission occurs, and how altering viral dynamics mitigates the spread of disease, providing evidence-based strategies for designing public health controls.

ORAL PRESENTATION

Speaker

Thea Enache

Lead Presenter | A - 8

A - 9: Visual and Creative Arts (U/G) 1

9:00 AM – 11:00 AM | Location: Visionary Suite

UNDERGRADUATE/GRADUATE

ORAL PRESENTATION

Speakers

Benjamin Darby
Lead Presenter | A - 9

Brett Puppilo

Josef Ross-Ma'u
Lead Presenter | A - 9

Miriam Scholte
Lead Presenter | A - 9

Olivia Newell
Lead Presenter | A - 9

A Journey Into the Arks: How Art Became a Tool for Scientific Discovery

9:15 AM – 9:35 AM

MASTER'S

Little-known viruses, bacteriophages or phages, kill bacteria, which is good for coral reefs. This simple biological truth, known as viralization, is the conceptual anchor of my artistic practice. Viralization describes the dynamics when viruses restrain runaway bacterial growth, allowing reef ecosystems to recover from microbial stress.

For over a decade, my work has unfolded through ongoing collaboration with the Rohwer Lab, where I explore how artistic methods can illuminate and generate new scientific research lines. I first created dozens of bacteriophage illustrations for Life in Our Phage World. Those images emerged through long, recursive conversation; looking closely so art and science became inseparable. What began as representation became speculation and a shared attempt to understand how viruses shape the future of coral reefs.

This inquiry expanded into the development of Coral Reef Arks, midwater reef-building structures designed to study and restore coral ecosystems. Sculpture became a research instrument. I helped design, engineer, and fabricate structures, including the DNARK, a limestone and travertine underwater sculpture modeled on the icosahedral geometry of a bacteriophage capsid entwined with a DNA helix. Its form served as a test of how internal geometries influence water flow, organism settlement, and cryptic biodiversity.

Through these works, I approach art not as an illustrative tool but as a mode of ecological thinking. Drawing and sculpting rehearse scientific hypotheses by creating physical analogs for conceptual frameworks like viralization. The process generates forms that scientists can adapt and test: art catalyzing new questions in coral reef biogeochemistry. By embedding scientific ideas into structures that live underwater and accumulate life, I aim to expand the vocabulary we use to talk about coral reef conservation and restoration. My works invite people to recognize ecological change hinges on microscopic actors and like a phage, art can enter a system quietly and transform it.

ORAL PRESENTATION

Speaker

Benjamin Darby
Lead Presenter | A - 9

Acting Out the Silence: Queer Performance and the Fight Against Erasure

9:35 AM – 9:55 AM

MASTER'S

This research explores how queer theatre and community performance confronted the silence and stigma surrounding the AIDS/HIV crisis in the 1980s and 1990s. When the government and media ignored the suffering of queer communities, theatre became one of the only places where truth could be spoken and lives could be seen. Plays such as As Is, The Normal Heart, and Angels in America pushed audiences to witness the realities of illness, grief, and survival while demanding accountability and compassion. Outside of mainstream stages, underground performances offered safe spaces where queer people, especially people of color, formed chosen families, shared life saving information, and transformed performance into a tool of education and resilience. By examining both large scale productions and underground performance spaces, this project argues that theatre did not simply portray the AIDS crisis. It helped communities endure it. Through storytelling, community, and activism, queer performance reshaped how society understood the epidemic and created a foundation for a more inclusive and socially conscious theatre that continues today.

ORAL PRESENTATION

Speaker

Brett Puppilo

Everything Is Marketing: How Pop Artists Navigate Artistic Integrity And Commercial Viability

9:55 AM – 10:15 AM

MASTER'S

Social media has changed the playing field for musicians, increasing opportunities to share their work, connect with their fans, and sell their commodities. To take advantage of these powerful platforms, artists must invest more of their time and creativity to produce and perform what their fanbase perceives as “authentic” versions of themselves. In this study I investigate how contemporary pop musicians engage with social media and navigate the challenge of maintaining artistic integrity while continuing to generate products that are commercially viable. I will focus on the creation and promotion of Imogen Heap’s album Ellipse and Halsey’s single So Good, analyzing their social media posts and consulting interviews relating to those projects. This study will draw from Sophie Bishop’s theory of “Influencer Creep” (including elements of self branding, optimization, and performance of authenticity) to investigate how these two artists deployed strategies of social media engagement. The self branding tenet will address how they portrayed themselves in their posts, the optimization tenet will reveal the extent to which social media activities shaped the artistic product, and the authenticity tenet will help examine the level of transparency concerning the production and marketing process, and how it impacted their engagement with fans. I expect this research to reveal the necessity for contemporary artists to establish how they will use social media before signing any deals with major or independent music labels. By being informed with what works for them, artists will be better equipped to shape business contracts that require social media engagement so that they align with their artistic vision.

ORAL PRESENTATION

Speaker

J **Josef Ross-Ma'u**
Lead Presenter | A - 9

Christ’s Entry into Brussels in 1889 and Anti-Theocratic Iconography: A Theopolitical Phantasmagoria

10:15 AM – 10:35 AM

UNDERGRADUATE

James Ensor’s 1888 painting Christ’s Entry into Brussels in 1889 has long been understood as a chaotic, satirical indictment of modern Belgian society and its religious hypocrisies, with scholars typically emphasizing its critique of bourgeois culture, populist crowds, and the spectacle of contemporary civic life. Canonical interpretations often focus on Ensor’s deployment of social movement slogans, grotesque caricatures, and the anachronistic insertion of Christ into a modern procession as a general commentary on society and religion. Yet these readings overlook a crucial iconographical dimension: the relationship between Christ’s central placement and the concurrent rise of the Catholic Political Party in late-nineteenth-century Brussels. My art historical research asks how Ensor’s use Christ functions not merely as a symbol of generalized religiosity but rather as pointed commentary on Catholic political power. Through the research methods of: formal analysis, iconographic interpretation, and social art history , I contend that Ensor employs Christ as an iconographical stand-in for the Catholic Political Party, thereby framing the painting as a more direct anti-capitalist critique of the Church’s entanglement with Belgian politics. Ensor's aggressive impasto, clashing complementary colors, and grotesque crowd transform the modern procession into a satirical condemnation of theocratic influence on Belgian social politics. At the same time, his adoption of Flemish religious history-painting conventions situates this critique firmly within the art historical canon. Ultimately, I argue that Christ’s Entry into Brussels in 1889 extends beyond a broad critique of society and religion: it offers a targeted indictment of Catholic political authority during a pivotal moment in Belgium’s political history. In doing so, it fills a significant gap in the scholarship by reconnecting Ensor’s formal strategies and iconography to the specific political climate from which the painting emerged.

ORAL PRESENTATION

Speaker

M **Miriam Scholte**
Lead Presenter | A - 9

You Shouldn't Need Bears to be Nice: Bridging the Gap Between Student and Professional Theatre

10:35 AM – 10:55 AM

UNDERGRADUATE

An exploration of our experience co-directing Lauren Gunderson's "Exit, Pursued by a Bear," the first student theatre production to perform in MOXIE Theatre's space, bridging the gap between SDSU students and the San Diego professional theatre community.

ORAL PRESENTATION

Speakers

O **Olivia Newell**
Lead Presenter | A - 9

K **Kylee Kyte**
Lead Presenter | L - 3

A - 10: Behavioral and Social Sciences (U) 1

9:00 AM – 11:00 AM | Location: Presidential Suite

UNDERGRADUATE

ORAL PRESENTATION

Speakers

Chandria Arboleda
Lead Presenter | A - 10

Guillermo Reza
Lead Presenter | A - 10

Marc Dayon
Lead Presenter | A - 10

Tavee Binavi
Lead Presenter | A - 10

Penelope Dalton
Lead Presenter | A - 10

The Manosphere, Misused Science, and the Monster We Built

9:15 AM – 9:35 AM

UNDERGRADUATE

Science has always had a dark side — from phrenology to eugenics, it's been twisted to justify inequality — and today we see the same thing happening in the manosphere. Groups like incels, Men's Rights Activists, and pickup artists grab bits of evolutionary psychology, strip them of nuance, and use them to argue that women are biologically duplicitous and inferior. These ideas don't just stay in fringe forums; they spill onto platforms like TikTok, where the language of "science" shields them from moderation and feeds impressionable young men a steady diet of misogyny. Phones and algorithms accelerate the process, but the roots go much deeper: they're in the patriarchal norms that have shaped society for centuries. Teachers are already reporting these attitudes showing up in classrooms, and parents are seeing the divide between boys and girls grow sharper. So the solution isn't just banning phones or blocking apps — it's teaching digital and scientific literacy, creating whole-of-school approaches, and encouraging caregivers, especially fathers, to model healthier masculinities. But most of all, it's about cultural change: challenging the old values that keep misogyny alive and offering new stories, grounded in empathy, equality, and human dignity.

ORAL PRESENTATION

Speaker

Chandria Arboleda
Lead Presenter | A - 10

Translating Community Realities into Sanitation Justice

9:35 AM – 9:55 AM

UNDERGRADUATE

A restroom door can be the difference between dignity and exclusion. For too many people, unequal access to WaSH facilities reinforces systemic inequities and daily barriers to autonomy. The Project for Sanitation Justice is an academic–community partnership dedicated to advancing equitable access to water, sanitation, and hygiene resources across San Diego County and beyond. Formed through collaboration between SDSU faculty, student researchers, community residents, and local and national organizations, we seek to address persistent disparities in the accessibility, quality, and safety of public WaSH infrastructure. Many communities, particularly historically marginalized communities, continue to experience limited/inconsistent access to basic services such as water, toilets, handwashing stations, and menstrual hygiene products. These gaps not only undermine individual dignity and autonomy, but also carry broad public health implications such as exposure to infectious disease, environmental hazards, and social exclusion. During my practicum, I conducted a Photovoice project on WaSH accessibility at SDSU. The project was on who has access to restrooms, who is permitted to use them, and how users are treated; I coined the phrase "Were you given the royal treatment?" to encapsulate the dignity that equitable access should entail. Building on something as small as a project, I continued my efforts through SURP, expanding my research to the broader San Diego community. I have helped translate the project's research findings into digestible conversations that incorporate community voices and shed light on the systemic inequities embedded in WaSH access. Through fieldwork outings, mapping tools, and recording of data, I've been able to translate PSJ's research findings into an approachable conversation for the public about how safe, reliable access to WaSH resources constitutes a fundamental human right and core public service. In doing so, I advance the project's broader goals of promoting dignity, public health, and environmental justice for all.

ORAL PRESENTATION

Speaker

Guillermo Reza
Lead Presenter | A - 10

Iris Avenue Trolley Station Fear Mapping

9:55 AM – 10:15 AM

UNDERGRADUATE

The Iris Avenue Trolley Station has multiple areas where people feel more unsafe than others. What are the specific areas where people feel the most unsafe and safe at the Iris Avenue trolley station? The two methods that were used were Survey123 and fear mapping. Survey123 gathered information on how unsafe and safe individuals felt at the Iris Avenue Trolley Station. The survey included scales of 1 to 5 to determine how safe or unsafe individuals felt. Fear mapping was done through physical printed maps. Participants circled safe areas and used the symbol “X” to mark unsafe areas. Individuals also marked the association with the ‘X” marking by using different symbols. The symbols used were,“H” for Homeless, “C” for Crime, and “T” was used for Traffic. After conducting the surveys with Survey123 there were extensive results. The results concluded that the overall majority of individuals showed high ratings of feeling unsafe with an average of 3.8 to 4.4 rating feeling unsafe. Women reported highest unsafe ratings with an average of 4 to 5 on the scale of feeling unsafe. While men dominated the survey section of feelings the most safe with scores of 1 to 2 on the scale. Fear mapping results showed, 12 out of 15 people that participated in the fear mapping showed feelings of being unsafe near the parking of the station. Out of the 12 people that marked feeling unsafe here, noticed large activity of homeless people and drug use in the parking lots. 6 of these 15 people mentioned seeing crime occur in the parking lot and on 30th Street. Also all 15 Individuals circled Howard Avenue as a place where they felt the most safe due to large amounts of lighting and heavy traffic. Findings showed that people felt more unsafe near parking lot areas due to constant homeless activity and crime. Potential implications are this trolley station is open to all of the public. Therefore, potential policies could include, individuals who commit a felony near the trolley station should not be allowed to use public transportation.

ORAL PRESENTATION

Speakers

M

Marc Dayon

Lead Presenter | A - 10

K

Kimberly Flores

Co-Presenter | A - 10

Study Spaces and Student Well-Being: How Campus Environments Influence Emotional Health

10:15 AM – 10:35 AM

UNDERGRADUATE

Objective:

The objective of this research was to determine which built environment promotes the healthiest mental well-being among students engaged in studying or work on a college campus, with particular attention to tree canopy and natural setting.

Method:

The Research Question guiding this project was: To what extent does a natural environment, with an emphasis on tree canopy, influence the emotions of young adults engaged in study or work? A survey was created using Esri’s Survey123 and assigned to 60 participants, 20 individuals in each of three conditions: Turtle Pond (an outdoor area under tree canopy), the Conrad Prebys Aztec Student Union (an outdoor area without tree canopy), and the SDSU Library (indoor condition). Participants reported their grade level and the assignment they were working on. The survey included a simplified version of the DPES and DASS-21 questionnaires and asked participants to rate six emotions—Stress, Creativity, Sadness, Happiness, Anxiety, and Boredom—on a scale of 1 to 7. Individuals also placed a pin on an interactive map to record their location. Data was collected through Esri.

Results:

Results showed clear emotional differences between the three conditions. Under tree canopy, individuals scored the lowest in negative emotions: Stress (M = 3.15), Sadness (M = 2.1), Anxiety (M = 2.85), and Boredom (M = 2.9). This condition also scored high in positive emotions: Happiness (M = 5.2) and Creativity (M = 4.25). The indoor library condition showed the highest negative emotions—Stress (M = 5.25) and Anxiety (M = 4.85)—and the lowest positive emotions (Happiness M = 4; Creativity M = 4.33). Unexpectedly, the Student Union Building scored the highest in Happiness (M = 5.4) and Creativity (M = 4.68) and showed higher values across every emotion compared to the tree canopy condition.

Conclusion:

Self-reported Anxiety, Stress, Sadness, and Boredom were lowest in the tree canopy condition and highest indoors. Happiness and Creativity were higher in outdoor settings overall. The outdoor area without tree canopy appeared most stimulating,

ORAL PRESENTATION

Speaker

T

Tavee Binavi

Lead Presenter | A - 10

Understanding the specific health and healthcare needs of women on the street in San Diego, CA

10:35 AM – 10:55 AM

UNDERGRADUATE

Women and girls account for an estimated 29% of unsheltered San Diegans and 38% of individuals in emergency shelters. Despite this significant presence, few services in San Diego specifically address the unique and pressing healthcare, safety, and hygiene needs of unhoused women. This mixed-methods action research project seeks to fill that gap through a six-month, IRB-approved initiative that leverages the trusted environment cultivated by Street Corner Care and The Ladle Fellowship. We aim to gather data and stories that reveal the most urgent and unmet needs of unhoused women in San Diego, and to translate this information into practical tools for shelters, healthcare providers, and front-line professionals. We hypothesize that unhoused women in San Diego are facing healthcare and hygiene needs that are currently unmet by service providers in downtown San Diego. Our two methods for analysis are as follows. First, we conducted private, structured 15-minute interviews at the Ladle fellowship, where participants received approximately $25 worth of hygiene supplies (n=20). We also completed retrospective analysis of de-identified Street Corner Care charts of female-identifying patients from 2017-present (n=200). To date, we have analyzed 113 charts and conducted 12 short-form interviews. Chart reviews showed that 67% of individuals had health insurance, 50% were hospitalized within the past year, and 54% had chronic health conditions. Mental health disorders were present in 27%, 27% had wounds, and around 50% were prescribed medications. Interviews showed that insurance often gave access to both medication and primary care, and that an increase in primary care would reduce other hospitalizations and help meet needs. Interviews also showed the importance of hygiene and safety for unhoused women. Preliminary findings reveal substantial medical and mental health needs among unhoused women, along with large gaps in continuity of care, hygiene access, and resource distribution. These results highlight the need for coordinated, women-centered services in San Diego.

ORAL PRESENTATION

Speakers

P **Penelope Dalton**
Lead Presenter | A - 10

Paul DeStefano
SDSU

A - 11: Behavioral and Social Sciences (U) 2

9:00 AM – 11:00 AM | Location: Leon Williams Room, Love Library 431

UNDERGRADUATE

ORAL PRESENTATION

Speakers

B **Britney Garcia**
Lead Presenter | A - 11

F **Fernanda Ronzon**
Lead Presenter | A - 11

J **Jaslin Galvan**
Lead Presenter | A - 11

J **Jillian Olson**
Lead Presenter | A - 11

K **Kayla Neutel**
Lead Presenter | A - 11

Eating Disorders and Recovery in Our Communities: An Intersectional Feminist Perspective

9:15 AM – 9:35 AM

UNDERGRADUATE

Eating Disorder pathology, though frequently understood through the lens of Eurocentricity, heteronormativity, and high socioeconomic status, are a public health concern that transcends the narrow conceptions provided by dominant Western culture and medical practice. By drawing on intersectional feminist theory, this presentation examines how eating disorders are produced, maintained, and treated within systems defined by gendered oppression, racism, class inequality, fatphobia, and medical bias. To illuminate the nuanced realities of marginalized communities' experiences of and recovery from eating disorders, this work integrates an intersectional sociocultural framework to evaluate modern eating disorder literature within their sociocultural contexts. Particular focus is placed on continued disparities in food security, exclusion of marginalized communities in current research literature, impacts of colonial oppression on modern eating pathologies, and prospective means to dismantle barriers to clinical treatment methodologies.

ORAL PRESENTATION

Speaker

B **Britney Garcia**
Lead Presenter | A - 11

Glycemic Awareness and Behavior Change Using Continuous Glucose Monitoring in Young Adults with T2D

9:35 AM – 9:55 AM

UNDERGRADUATE

Background: Early-onset type 2 diabetes (T2D; diagnosed before age 40) is increasing among young adults and is associated with earlier complications (e.g., cardiovascular and kidney disease) and reduced life expectancy. Many struggle with self-management behaviors such as physical activity and healthy eating, partly due to fewer symptoms and low glycemic awareness. Continuous glucose monitors (CGMs) can increase glycemic awareness through real-time glucose feedback, but access remains limited among young adults due to insurance and financial barriers.

Purpose: This study evaluated whether 30 days of CGM and FitBit use helped young adults with T2D increase glycemic awareness and recognize relationships between health behaviors (e.g., diet, physical activity, stress, sleep) and glucose patterns.

Methods: Adults aged 18-40 with T2D were recruited from Scripps Health (N=12; ongoing). Participants wore a CGM and Fitbit for 30 days and completed surveys about self-management behaviors. Semi-structured interviews assessed acceptability and feasibility of CGM use and participants' understanding of connections between health behaviors and glucose. Interviews were audio-recorded, transcribed, and coded using Dedoose and thematic analysis.

Results: Preliminary qualitative findings indicate that participants identified clear connections between health behaviors and glucose patterns. Many noticed that certain foods and drinks caused glucose highs, while physical activity moderated glucose levels. These observations prompted behavior changes, such as regular walks, drinking less soda, and paying closer attention to carbohydrate intake.

Conclusion: Early findings suggest that CGMs and Fitbits support meaningful behavior changes in young adults with T2D by increasing glycemic awareness. Identifying mechanisms of behavior change associated with CGM use will inform future self-management programs tailored to younger adults.

ORAL PRESENTATION

Speaker

F

Fernanda Ronzon

Lead Presenter | A - 11

Access to Continuous Glucose Monitors for Type 2 Diabetes: A Health Policy Review to Inform Research

9:55 AM – 10:15 AM

UNDERGRADUATE

Background: Type 2 Diabetes (T2D) affects millions across the U.S. Continuous Glucose Monitors (CGMs) provide real-time glucose data through a small wearable sensor. CGM use has improved diabetes management and treatment for individuals with type 1 diabetes, and those with T2Ds using insulin. However, young adults with recently diagnosed T2D often lack access due to cost and limited insurance coverage.

Purpose: The goal of this project was to conduct a targeted literature review to develop a health policy brief on CGM access and use.

Methods: Relevant research literature in PubMed was reviewed, as well as health policy and guidance documents from the U.S. Centers for Medicare and Medicaid Services, major insurance companies serving California, the U.S. Department of Health and Human Services, the American Diabetes Association (ADA), and the Center for Health Care Strategies (CHCS). Four concepts were covered in the policy brief: (1) CGM medical guidance, (2) insurance access, (3) access-expansion programs, and (4) the role of clinical and behavioral research in shaping medical policymaking.

Results: Key findings included understanding the ADA's role in establishing clinical guidance for CGM use and current policies of major private and public insurers that dictate real-world access. We reviewed how insurance administrators consider ADA guidance, health laws, FDA Approval, cost negotiations, and clinical evidence when determining coverage. We summarized the CHCS Medicaid Access Accelerator Initiative, which aims to expand CGM access across select states. Finally, the brief outlined how researchers can better influence policy in this area of health care. This includes (1) raising awareness about critical health problems, (2) researching effects of innovative health interventions, (3) estimating costs and benefits of new policy proposals, and (4) disseminating findings to policymakers.

Conclusions: SDSU researchers in the Department of Psychology will utilize this brief to better understand how clinical guidance, research evidence, and policies impact access.

ORAL PRESENTATION

Speaker

J

Jaslin Galvan

Lead Presenter | A - 11

When Misogyny Becomes a Hate Crime: Reclassifying Repeated Offenses of Domestic and Sexual Violence

10:15 AM – 10:35 AM

UNDERGRADUATE

This paper examines whether repeated acts of sexual and domestic violence against women should be prosecuted as hate crimes motivated by misogyny and how such reclassification would reshape legal, political, and feminist understandings of gender-based harm in the United States. Drawing from firsthand experience at a domestic and sexual violence agency, the research highlights patterns of extreme, repeated violence against women that are routinely treated as private, interpersonal crimes rather than manifestations of gender-based hatred. Using an interdisciplinary framework that integrates legal doctrine, feminist theory, and criminological scholarship, the paper argues that repeated sexual and domestic violence meets the legal and moral criteria for hate crimes because it reflects misogynistic bias and group-based targeting. The analysis demonstrates how U.S. legal traditions, evidentiary rules, and the "private intimacy" narrative obscure gender-based motives even when cases satisfy hate-crime standards. It further examines empirical patterns of repeat offending and compares U.S. practices with international models, including UN frameworks and feminicide laws in Spain and Latin America, that recognize gender-motivated violence as structural discrimination. Incorporating survivor testimony and feminist advocacy, the paper shows that reclassification would enhance accountability, improve data visibility, and symbolically affirm that violence against women is intolerable. The paper concludes that prosecuting repeated misogynistic violence as a hate crime is legally justified and essential to confronting the structural misogyny embedded in the U.S. legal system and to reframing gender-based violence as a public threat to equality and democratic justice.

ORAL PRESENTATION

Speaker

Jillian Olson
Lead Presenter | A - 11

Cognitive Impairment and Behavior Problems in Children With and Without Prenatal Alcohol Exposure

10:35 AM – 10:55 AM

UNDERGRADUATE

Prenatal Alcohol Exposure (PAE) is associated with cognitive impairment (CI) and behavioral problems. Children's cognitive skills have been negatively associated with behavioral disruptions; this may be driven by inattention, a symptom associated with PAE. We examined associations among CI and behavioral problems in children with and without PAE. We hypothesized that CI would be associated with more internalizing (INT) and externalizing (EXT) behaviors, and the proportion of children with clinically-significant INT/EXT behaviors would be higher for individuals with CI than without, both in children with PAE and controls. Participants (N=723) were from phases 2-4 of the Collaborative Initiative on Fetal Alcohol Spectrum Disorders study and 5-17 years old (Mage=10.70 years, SD=3.45, 54% male). Caregivers reported PAE history and completed the Child Behavior Checklist, providing age and sex-adjusted T-scores for INT/EXT behavior. Cognitive functioning was assessed using the Wechsler Intelligence Scale for Children, and CI was defined as FSIQ<70. When IQ was lower, EXT scores were higher for both PAE (n=374), r=-.334, p<.001, and control groups (n=349), r=-.364, p<.001. When INT scores were higher, IQ was lower for both PAE, r=-.191, p<.001, and control groups, r=-.209, p<.001. For the PAE group, a chi-square test of independence indicated a greater proportion of children with CI had clinically-significant EXT behaviors (score>70) than children without, $X^2(1, N=374)=4.62$, p=.032. However, there was no difference in the proportion of children with clinically-significant INT behaviors (score>70). Due to few controls with CI, chi-square analysis was only performed for the PAE group. Using continuous variables, CI related to EXT/INT behaviors in PAE and control groups. However, when we grouped INT/EXT by clinical significance, clinically-significant EXT but not INT behaviors associated with CI. This represents the importance of looking at both overall and clinically-significant behaviors when considering the effect of CI. Research supported by NIAAA Grant U01 AA014834.

ORAL PRESENTATION

Speaker

Kayla Neutel
Lead Presenter | A - 11

E - 1: Cancer Research Convergence (U/G) 1

9:00 AM – 11:00 AM | Location: Templo Mayor

UNDERGRADUATE/GRADUATE

CANCER ORAL PRESENTATION SPECIAL SESSION

Speakers

Bianca Rollbusch
NIH-NIGMS MARC Scholar | Monkkonen Lab @ San Diego State University

Brianna Hostler
Lead Presenter | E - 1

Connor Schmidt
Lead Presenter | E - 1

Emily Rodriguez
Lead Presenter | E - 1

Harshada Sapre
Lead Presenter | E - 1

Fibroblast Autophagy Inhibition Alters Mammary Gland Development

9:15 AM – 9:35 AM

UNDERGRADUATE

Breast cancer remains a prevalent threat to countless lives, impacting approximately 1 in 8 American women and being the second leading cause of cancer deaths in women. Understanding the mechanisms and cellular communications behind this disease and basis of normal gland homeostasis is vital for understanding disease etiology and developing targeted treatment. One established non-tumor cell factor that promotes cancer development is extracellular matrix (ECM) accumulation. The ECM plays an important role in mammary gland development by regulating branching morphogenesis. Fibroblasts are a major source of ECM proteins and have been shown to promote tumorigenesis by increasing secretion of ECM components like collagen. Recent data suggest that loss of fibroblast autophagy—a conserved cellular process upregulated by stress that recycles nutrients—impairs tumor growth of Luminal B breast cancer. There was also reduced ECM deposition with loss of fibroblast autophagy. We hypothesize that loss of fibroblast autophagy may alter the development of branching structures within the glands. To test this hypothesis, we employ transgenic mice with conditional loss of fibroblast autophagy by loss of autophagy-related protein 5. Ten-week-old adult mutant knockouts versus wild-type mammary glands were compared for overall morphology, proliferation, and apoptosis. We have found a statistically significant ($p<0.012$ (<0.05); $t(1)=2.69$) reduction in developed branching structures filling the 4th mammary gland in the mutant fibroblast-specific autophagy-inhibited mice when compared to the controls. We are currently increasing sample sizes and are performing immunofluorescent staining of tissues with proliferation markers (Ki67) and apoptosis (Cleaved Caspase 3) to test changes in the ducts or terminal end buds that may account for altered branching morphogenesis. This work enables a greater understanding of how autophagy affects the development of mammary tissue and the ECM. This data will aid in achieving an understanding of fibroblast autophagy in normal and in the context of cancer.

CANCER ORAL PRESENTATION SPECIAL SESSION

Speaker

Bianca Rollbusch

NIH-NIGMS MARC Scholar | Monkkonen Lab @ San Diego State University

Proton versus Photon VMAT Craniospinal Irradiation for Hematologic Leptomeningeal Disease

9:35 AM – 9:55 AM

UNDERGRADUATE

Craniospinal irradiation (CSI) is an effective treatment for hematologic leptomeningeal disease (LMD). Comparative outcome data for proton CSI (“pCSI”) vs photon-based volumetric modulated arc therapy (VMAT, “xCSI”) are yet to be described for hematologic malignancies. We compared outcomes between xCSI and pCSI, hypothesizing higher toxicity with xCSI but similar survival. Hematologic patients who received CSI between 2020–2025 were identified. Hematologic and nonhematologic toxicities were graded with CTCAE v.5.0 at baseline, during treatment, and at 1- and 3-months post-CSI. Overall survival (OS) was evaluated from CSI end and analyzed with Cox proportional hazards models adjusted for ECOG. Progression-free survival (PFS) and CNS progression-free survival (CNS-PFS) were also evaluated. 34 patients received CSI: 26 (76%) xCSI, 8 (24%) pCSI. Radiation dose ranged from 7.2 Gy–30.6 Gy in 4–17 fractions. Baseline characteristics were similar between groups: acute lymphoblastic leukemia (59%) and non-Hodgkin lymphoma (18%) were the most common histologies ($p=.51$), and most were ECOG 1 ($p=.80$). Nonhematologic toxicities were largely grade 1-2, with fatigue, nausea, and pain most frequently reported, and no significant differences between modalities. Grade ≥3 lymphopenia was higher during xCSI (median grade 3.5 vs 2.5; $p=.01$) and resolved by 1 month ($p=.24$). Median OS was 28.3 months with no significant difference for xCSI vs pCSI (24.1m vs NR, respectively; $p=.23$), including after ECOG adjustment (HR 0.16; 95% CI 0.02–1.45; $p=.10$). PFS (8.6m vs 27.9m; $p=.30$) and CNS-PFS (18.6m NR; $p=.20$) were greater after pCSI but did not significantly differ. pCSI and xCSI showed comparable toxicity in patients with hematologic malignancies, supporting the safety of VMAT xCSI. However, higher rates of severe lymphopenia during xCSI warrant attention in this vulnerable population and may support pCSI when available in high-risk patients. This is an important first step toward optimizing neuraxis radiotherapeutic management in hematologic malignancies.

CANCER ORAL PRESENTATION SPECIAL SESSION

Speaker

Brianna Hostler

Lead Presenter | E - 1

Rheology of Irradiated Alginate-Gelatin Hydrogel Scaffolds

9:55 AM – 10:15 AM

UNDERGRADUATE

The effects of ionizing radiation on tissue are complex and in many cases still not fully understood. Research has worked to characterize some of these effects, including reproductive cell survival and overall tissue damage. However, effects of ionizing radiation on the viscous and elastic properties of tissue, known as rheology, have been largely neglected. Hence, this study seeks to begin to address this gap in the literature by examining the rheological properties of hydrogel systems. For this purpose, alginate-gelatin hydrogels were prepared with concentrations of 1% alginate and 7% gelatin. The hydrogels were constructed in the shape of a flat disc and crosslinked using calcium chloride .They were then irradiated using spatially fractionated radiotherapy (SFRT); The maximum dose was 60 Gray. Rheological measurements were made of the irradiated and non-irradiated samples and compared. Preliminary data indicates a statistically significant decrease in the storage modulus (an elastic property) in irradiated samples using spatially fractionated radiotherapy. Further study is ongoing on cell-containing samples and different sorts of radiotherapy.

CANCER ORAL PRESENTATION SPECIAL SESSION

Speaker

Connor Schmidt

Lead Presenter | E - 1

Assessing the role of obesity in ovarian tumor metastasis

10:15 AM – 10:35 AM

UNDERGRADUATE

In every 100,000 American women, around 10 are diagnosed with ovarian cancer. Poor patient outcomes have been linked to obesity, with its factors supporting angiogenesis, inflammation, and proliferation of tumor cells. Ovarian cancer preferentially metastasizes in the omentum, a fatty tissue sheet composed of adipocytes, preadipocytes, fibroblasts, and immune cells. Specifically, preadipocytes are precursor cells to adipocytes that secrete insulin-like growth factor 1 (IGF-1), a factor that is elevated systemically in obesity. Moreover, activation of the NF-kB signaling pathway is essential for tumor metastasis, proliferation, and cell survival. However, the tumor-promoting mechanisms of IGF-1 and its interaction with NF-kB signaling in the context of obesity remain poorly defined. We hypothesize that preadipocytes from high BMI tissues enhance ovarian cancer progression via IGF-mediated NF-kB signaling. We will evaluate this hypothesis using subcutaneous co-injections of ACI23 GFP+ human cancer cells with high or normal BMI omental preadipocytes. To quantify NF-kB activation, we performed immunohistochemical analysis of nuclear localization of RelA and RelB, along with Ki-67 as a proliferation marker, in harvested tumors. Results demonstrated no significant difference between RelA and RelB; however, there was a trend toward higher Ki-67 expression in the high-BMI group. Next, we assessed gene expression differences from sorted ACI23 GFP+ tumor-derived cells and found that extracellular matrix-associated genes were not significantly altered. Late-stage tumors revealed a significant decrease in SOX2 expression, suggesting these cells lose their stemness and gain a proliferative phenotype. Future experiments involve co-cultures between preadipocytes and ovarian cancer cells to investigate the role of IGF-1 in modulating NF-kB signaling in cancer cells. Through this research, we aim to highlight the influence of obese tissue on ovarian cancer metastasis towards identifying novel targets for patients with this condition.

CANCER ORAL PRESENTATION SPECIAL SESSION

Speaker

Emily Rodriguez

Lead Presenter | E - 1

Investigating TWEAK-Mediated Regulation of Ovarian Cancer Cell Survival

10:35 AM – 10:55 AM

MASTER'S

High-Grade Serous Ovarian Cancer (HGSOC) remains a salient concern in women's health, with 90% of patients eventually experiencing resistance to standard-of-care chemotherapies. Research implicates a subpopulation of quiescent, multipotent cells termed Cancer Stem-like Cells (CSCs). We previously identified Tumor Necrosis Factor-Like Weak Inducer of Apoptosis (TWEAK), a pro-inflammatory cytokine, as highly enriched in the tumor microenvironment following chemotherapy and a critical mediator of CSCs. We also found that a subpopulation of cells without CSC features were more sensitized to chemotherapy in the presence of TWEAK, suggesting a dual role for TWEAK. Canonically, TWEAK influences cell differentiation; however, this role is ill-defined in ovarian cancer. We hypothesize that TWEAK induces chemosensitivity in non-CSCs and chemoresistance in CSCs in ovarian cancer. To study this signaling in an immunocompetent mouse model recapitulating the tumor microenvironment, the murine ovarian surface epithelial cell line ID8 (p53-mutant and p53-wild type) were used. Combination IC50 of Carboplatin and Paclitaxel was studied in both cell lines for accurate drug dosing. A panel of surface markers was assessed for baseline expression by flow cytometry, including the TWEAK receptor Fn14 (27%), and CSC markers LGR5 (3.19%), GRP78 (29%), CD117 (70%), and αVβ3(0.27%). GRP78 was identified as a promising CSC marker in the p53-mutant ID8 cell line, with baseline expression of 29% increasing significantly to 53% post-chemotherapy. FACS sorting of GRP78+ enriched fractions to have high baseline expression of stem genes SOX2,OCT4, and NANOG. To assess TWEAK induction of CSC features, pre-treatment of TWEAK in GRP78 + and GRP78- factions showed an overall increase in viability after chemotherapy treatment, suggesting TWEAK treatment before chemotherapy may provide an advantage in survival. Current work is investigating GRP78+ ID8 cells using in vitro assays, and future studies will elucidate the role of TRAF proteins in directing TWEAK-Fn14 activity.

CANCER ORAL PRESENTATION SPECIAL SESSION

Speaker

Harshada Sapre

Lead Presenter | E - 1

F - 1: Biological and Agricultural Sciences (U) 1

9:00 AM – 11:00 AM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

Adrian Ayala

Lead Presenter | F - 1

Isabel Mason

Lead Presenter | F - 1

Isabella Calbert

Lead Presenter | F - 1

Jasmine Pooni

Jonathan Siah

Lead Presenter | F - 1

Katrina Rodrigues
Lead Presenter | F - 1

Liam Walters
Lead Presenter | F - 1

Ryan Tomita
Lead Presenter | F - 1

Phage therapy in a CF patient with multi-drug resistant Achromobacter xylosoxidans infection

9:00 AM – 10:55 AM

UNDERGRADUATE

People with cystic fibrosis (CF), an inherited genetic disease, are unable to effectively remove mucus from the lungs, restricting the ability to move oxygen throughout the body. The buildup of mucus creates an ideal environment for bacterial growth, leading to chronic infections and damage due to inflammation. Standard treatment of CF include antibiotics. Over time bacteria become antibiotic resistant, leading to further deterioration of lungs, decreased quality of life, and the need for lung transplantation or death.

Phage therapy (PT) is an experimental treatment being used under “compassionate use” FDA guidelines. Bacteriophages (phages) are generally used alongside antibiotics to target bacteria, in this case Achromobacter xylosoxidans (Axy). Axy is a highly multidrug-resistant (MDR), gram-negative, opportunistic infectious pathogen, commonly found in soil. It can establish lung infections and thrive there through formation of biofilms, decreasing the ability to move gases and mucus through the lungs, causing further complications for CF patients. Ideally the use of phages and antibiotics will reduce the population of Axy.

Axy isolates from a CF patient were obtained before, during, and after PT since 2023. During that time, three rounds of PT were performed. The first round used one phage, the second and third added another phage unrelated to the first. The antibiotics used in the first round were ceftolozane-tazobactam, and oxacillin, whereas only one antibiotic, meropenem, was used in the last two rounds.

To determine the effect of PT on Achromobacter, we performed efficiency of plating experiments, minimum inhibitory concentration assays for meropenem, and checkerboard assays with the phages and meropenem. Our results allow us to determine whether the Achromobacter strains evolved phage resistance during treatment, whether the strains evolved resistance or sensitivity to meropenem during therapy, and to identify new potential phages to use, and at what concentration, for future rounds of phage therapy.

POSTER

Speakers

Adrian Ayala
Lead Presenter | F - 1

Nancy Ong
Co-Presenter | F - 1

Enhancing Mixotrophy in Dunaliella Salina Using Acetazolamide

9:00 AM – 10:55 AM

UNDERGRADUATE

Dunaliella salina is a species of green microalgae that prefers extremely saline environments and is best known for its abundant production of nutrients such as various amino acids, antioxidants, vitamins, and proteins. Dunaliella salina can be either photoautotrophic or mixotrophic depending on the environment. Mixotrophy in Dunaliella salina has not been reliably tested and methods to modify Dunaliella salina’s metabolism are needed. The algae is limited when it relies solely on photoautotrophic metabolism since there is less dissolved CO_2 so they must rely on carbonic anhydrase to turn bicarbonate into CO_2 for photosynthesis. This leads to lower biomass production than if the algae were to metabolize mixotrophically. In order to trigger this mixotrophic change, Dunaliella salina will be grown in the presence of acetazolamide. Acetazolamide is a carbonic anhydrase inhibitor that has the possibility to encourage mixotrophy in Dunaliella salina so that the production of preferred nutrients can be enhanced. In order to properly measure the effects that acetazolamide has on the metabolic state of Dunaliella salina, I will observe the growth of two algae cultures, one in the presence of acetazolamide and one without, until the end of the stationary growth stage. The biomass production of each culture will be measured through various assays to measure the levels of lipids, carbohydrates, pigments, and proteins. The optical density of each culture will also be measured regularly to evaluate whether the culture is in the initial, exponential, declining, or stationary phases as these phases greatly impact the biomass composition. I expect to continually create graphs measuring the biomass composition as well as the changing optical density of both the acetazolamide containing and the non-acetazolamide containing cultures. This will help determine the effects that acetazolamide has on the metabolism of Dunaliella salina and whether it can successfully enhance the mixotrophic metabolic process of the culture through maximized biomass production and life span.

POSTER

Speaker

Isabel Mason
Lead Presenter | F - 1

Vibeology: Testing the sensitivity of prairie rattlesnake to substrate-borne vibrations

9:00 AM – 10:55 AM

UNDERGRADUATE

Many animals have evolved unique and complex sensory systems that allow them to perceive aspects of the environment not readily apparent to humans. For example, dogs are known for their sensitive olfaction while birds of prey are equipped with high visual acuity. Many subterranean or ground-dwelling species are also likely to be highly attuned to substrate-borne vibrations, but this form of vibration detection has not received much experimental attention, especially in vertebrates. Snakes, for example, lack external ears for the detection of sound-pressure waves, but they are known to be highly sensitive to ground-borne vibrations as they spend most of their life with their bodies fully in contact with the substrate. We sought to perform a detailed analysis of the sensitivity of a snake species to experimental vibrational cues, in order to lay the groundwork for studying the importance of this sense in their natural interactions with the environment. We first conducted a series of pilot trials to ascertain the proper experimental design, and a range of values that would be appropriate for testing. Following pilot trials, we used a captive population of 30 prairie rattlesnakes (Crotalus viridis) as test subjects. We exposed the rattlesnakes to standardized vibrational cues using a piezoelectric speaker system while they were held in sensory isolation chambers, and recorded all evoked behavioral reactions, including tongue flicks, head and body movement, and rattling. Our initial experiment demonstrated that prairie rattlesnakes were highly sensitive to even minor vibrational cues. Our preliminary study lays the groundwork for additional research that can examine how snakes respond to vibrational cues in an ecologically relevant framework, such as a foraging task.

POSTER

Speakers

I **Isabella Calbert**
Lead Presenter | F - 1

G **Gavin Henry**
Co-Presenter | F - 1

GREENING THE GREY: THE CAPABILITY OF NOVEL COASTAL ARMOURING UNITS TO BUFFER ABIOTIC STRESSORS

9:00 AM – 10:55 AM

UNDERGRADUATE

Urbanization has led to habitat disruption in intertidal areas, and currently in San Diego Bay much of the harbor shoreline is equipped with rock riprap. However, in order to provide more environmentally-friendly options, the Port of San Diego has installed two preliminary sets of concrete coastal armouring units that can serve as artificial tide pools meant to provide organismal refuge as well prevent coastal erosion. In this project, we looked at how the rates of photosynthesis and respiration in these pools changes the abiotic environment. We collected temperature, dissolved oxygen, and salinity measurements from both 5 and 30 cm depths in high- and mid-shore pools. To measure how dissolved oxygen changes as a result of respiration, we measured water quality parameters before and after covering six randomly-selected tidepools with a black tarp in order to stop photosynthesis. To compare if these units were providing more thermal relief than the nearby riprap, temperature loggers were installed using marine epoxy in exposed, sheltered, and pool microhabitats among the riprap and the concrete units. Our current data shows that there is a positive correlation between dissolved oxygen and respiration, as well as photosynthesis having a strong effect on the availability of oxygen in the pools. Further research is being conducted to provide additional data on how the abiotic factors may shift over the seasons in order to investigate the effectiveness for future installations.

POSTER

Speakers

Jasmine Pooni

Z **Zainab Al-Jasim**
Co-Presenter | F - 1

Chlorophyll Assays as Quantitative Markers of Drought Severity in 5C Hop Cultivars

9:00 AM – 10:55 AM

UNDERGRADUATE

Drought and unreliable water are a growing problem for people who grow hops. Farmers usually judge drought by looking at final yield, but by then it's too late to adjust. In this project, my partner and I tested a much simpler idea: can we just measure how "green" the leaves are to see how badly the plants are feeling the drought?

We grew five common hop varieties (Cascade, Centennial, Comet, Chinook, and CTZ) in pots at SDSU as part of a USDA funded class. Each plant was put in one of two watering levels: full water (100%) or half water (50%), to mimic normal conditions versus strong drought. For each plant, we took a leaf, froze it, then soaked it in alcohol to pull out the green pigment (chlorophyll). We ran the liquid through a machine that tells us how much green pigment is there. We also recorded how wet the soil was and how big the plants got.

Plants that received only half as much water always had less green pigment in their leaves than plants with full water. This shows that a simple leaf "greenness" measurement can reliably pick up drought stress. However, leaf greenness did not closely track how large the plants were. Some plants stayed fairly green but did not grow the most, and vice versa. When we looked at all traits together, one variety, Comet, changed the least between drought and full water, suggesting it may handle dry conditions more steadily than the others, but more data are needed to be sure.

Overall, this work shows that a basic chlorophyll test is a fast, low cost way to detect drought stress in hops, but it needs to be combined with other measures, like growth, to fully judge performance.

POSTER

Speaker

Jonathan Siah

Lead Presenter | F - 1

Understanding Economic Outputs in the Imperial Valley under Reduced Water Delivery

9:00 AM – 10:55 AM

UNDERGRADUATE

The Imperial Valley (IV) of Southern California is located in a desert climate and relies almost entirely on Colorado River water imported through the All-American Canal. In 2003, the Quantification Settlement Agreement (QSA) was implemented as a water conservation and transfer program, primarily to supply additional water to the county of San Diego. Within the program it was required that farmers implemented land fallowing and other conservation measures funded by San Diego; although this raised concerns that the agricultural output and economic value of IV would diminish. Through this project the central question(s) focused on: 1. How did the QSA impact the Gross Value of Production (GVP) in the Imperial Valley?; 2. What factors (area, yield, or price) had the largest influence on the changes in GVP over time?; 3. Did the QSA (2003-2025) accelerate a shift toward higher-value crops (vegetable and melons) relative to field crops?

Data from the Imperial County Agricultural Crop and Livestock Reports (1995-2023) were used to compare crop area, price, yield and GVP across time. A regression analysis for normalized (to 2003) and raw data was run to evaluate the influence of area, yield, and price on GVP. Through these charts it was possible to compare trends, assessing the different drivers across crop types, crop groups and the overall valley.

Findings indicate that despite the reduction in water delivery under the QSA, the total cropped GVP did not decline. Instead, GVP either remained stable or increased due to price increases and crop shifts. Price was consistently the strongest driver of GVP across the major crop categories, resulting in area and yield having smaller impacts. There was a shift in crop composition, from lower-value, water intensive crops (alfalfa and other grasses) to high-value, water efficient crops (vegetables and melons). This project finds that the Imperial Valley is highly resilient to reduced water delivery; it has demonstrated that with reduced water availability and policy restrictions the area is highly adaptable.

POSTER

Speaker

Katrina Rodrigues

Lead Presenter | F - 1

A comparison of substrate and strata use of Macaca maura in two human-impacted forests

9:00 AM – 10:55 AM

UNDERGRADUATE

Examining how human factors impact primate habitat use is crucial for conservation efforts. Human activities, such as encounters with people and the introduction of non-native plant species can influence the behavioral ecology of primates. The moor macaque, Macaca maura, is an Endangered primate species endemic to Sulawesi, Indonesia. My goal was to compare the level of terrestriality and strata use in moor macaques living in two forest sites in that differ in terms of human-habitat modification: the Karaenta forest of Bantimurung Bulusaraung National Park, which is dominated by karst forest, but also where the macaques receive provisions from people traveling through the park and the Hasanuddin University Education Forest (EF), which has a long history of human-modification, including the introduction of non-native tree species, such as the Sumatran pine (Pinus merkusii). I conducted behavioral observations of two groups of moor macaques over 11 days using the scan sampling method. Group scans were conducted at 15-minute intervals, during which I recorded the age/sex class, substrate, and strata location of the first five individuals in my line of vision from left to right. I collected a total of 99 and 50 substrate and strata records in the Karaenta and Education Forests, respectively. The Karaenta macaques spent a greater percentage of behavioral records on the ground (80.5%) than in the trees (13.1%), while the EF macaques spent a greater percentage of behavioral records in the trees than Karaenta Forest macaques did (52.7%, ground; 47.3%, tree). Whereas the Karaenta macaques spent the majority of behavioral records at the lowest level strata (86.7%, ground), the EF macaques were observed across several strata (52.7%, ground; 0.89%, 0-2m; 20.5%, >2-10m; 25.9%, >10m). These results indicate that moor macaques adjust their terrestriality and vertical space use in response to the type of human modification, underscoring the importance of maintaining structurally complex native forest for their effective conservation.

POSTER

Speaker

Liam Walters

Lead Presenter | F - 1

Understanding Pancreatic cancer liver metastasis through CA19-9

9:00 AM – 10:55 AM

UNDERGRADUATE

Pancreatic Ductal Adenocarcinoma(PDAC) is so deadly because it is hard to detect and is very aggressive. In PDAC, this a glycoprotein called CA19-9 that have high level of expression in around 70% of PDAC cases. The goal of my project is to create a take the FUT3 gene, which is crucial to making CA19-9 and knock it out. Then verify the cell line. This cell line will later be used in a spleen injection model in mice to see how the cancer spread to the liver without CA19-9

POSTER

Speaker

Ryan Tomita

Lead Presenter | F - 1

F - 2: Biological and Agricultural Sciences (U) 2

9:00 AM – 11:00 AM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

Antonio Estudillo

Lead Presenter | F - 2

Ariadna Gomez

Lead Presenter | F - 2

Franchesca Nicholson

Lead Presenter | F - 2

Jaycie Levar

Lead Presenter | F - 2

Jhadee Lynn Mendoza

Lead Presenter | F - 2

Liana Feng

Nicole Yarovoy

Rachel King

Lead Presenter | F - 2

Comparing the moor macaque diet between two human-impacted forests in South Sulawesi, Indonesia

9:00 AM – 10:55 AM

UNDERGRADUATE

Human-driven habitat alteration has reshaped Indonesia's ecological landscapes, threatening Endangered primates such as the moor macaque (Macaca maura). As forests become increasingly modified and fragmented, and encounters with people and human provisioning grow more common, understanding how these changes influence primate feeding behavior is vital for conservation. My objective was to examine moor macaque dietary flexibility across habitats that differ in human impact. I compared the diets of two groups in South Sulawesi: Karaenta forest within Bantimurung Bulusaraung National Park (BABUL-NP), where macaques have access to wild and provisioned foods, and the Hasanuddin University Education Forest (EF), a human-modified landscape with introduced non-native vegetation but no provisioning. I hypothesized that differences in human food availability would shape feeding behavior, with BABUL-NP macaques consuming both wild and provisioned foods, while those in EF would rely primarily on native and introduced plant species. From July 26 to August 9, 2025, I used the scan sampling method to observe both groups. Rotating observations between sites, I conducted group scans at 15-minute intervals for two to five hours per day, recording the behavior and age-sex class of the first five visible individuals. When foraging or feeding occurred, I noted food type and plant ID. Data were analyzed descriptively to calculate the percentage of behavioral records for each behavior and food category. Feeding accounted for 18.1% of 481 behavioral records at BABUL-NP and 19.7% of 239 at EF. BABUL-NP macaques predominantly consumed provisioned foods (60.9% of 87 feeding records; bananas and rice), while only 19.5% involved native or introduced leaves. In EF, most feeding involved seeds from introduced Pinus trees (31.9% of 47 feeding records) and Ficus spp. fruit (19.1%). These differences reveal intraspecific dietary variation and highlight the moor macaque's adaptability to human impacts, underscoring the need to reduce provisioning to support natural foraging behaviors.

POSTER

Speaker

A

Antonio Estudillo

Lead Presenter | F - 2

Supplementation of Carbon Metabolites Stimulates Filamentation in Bordetella atropi

9:00 AM – 10:55 AM

UNDERGRADUATE

Many bacteria have evolved the capacity to change their structure to become more fit for survival. Bordetella atropi is a Gram-negative bacterium that infects the gut of Oscheius tipulae nematodes. B. atropi can change its morphology from coccobacilli to filament during infection. These coccobacilli invade intestinal cells and divide without septation to spread between adjacent cells, thus decreasing the average lifespan by 2.5-fold. While B. atropi has been found to filament under nutritious media, simulating the change from extracellular to intracellular environments in the host, we still don't know which metabolites trigger this filamentation, particularly in vivo.

We aim to identify the specific metabolites that trigger this morphological change in B. atropi. To do this, we compared a wild-type strain with a mutant strain that lacks filamentation. These strains will allow us to test if there is a significant change in filamentation under different carbon metabolites involved in the Tricarboxylic Acid (TCA) cycle, glycolysis, and other metabolic processes. Prior research in the lab found that succinate and acetate metabolism were important for filamentation. Since succinate and acetate are involved in the TCA cycle, a metabolic pathway used for cell energy, we suspect this pathway could trigger the filamentation in B. atropi. To test this, metabolites were added to the media to measure the ability of B. atropi to filament in contrast to a filamentation-deficient mutant.

We found that supplementation of certain TCA metabolites like succinate, acetate, and citrate successfully induces filamentation in B. atropi, suggesting the role of the TCA Cycle in filamentation.

Therefore, the next steps are testing amino acid supplementation to observe how nutrient availability affects filamentation. By understanding what triggers this transition, we may be able to identify other bacteria that rely on similar metabolic mechanisms. This discovery could lead to a potentially conserved metabolite that triggers filamentation across bacterial groups.

POSTER

Speaker

A

Ariadna Gomez

Lead Presenter | F - 2

Effects of BSFL frass tea and UV exposure on nutrient composition of bull's blood beet microgreens

9:00 AM – 10:55 AM

UNDERGRADUATE

Effect of black soldier fly larvae frass tea and ultraviolet light exposure on nutrient composition of bull's blood beet microgreens

Franchesca Nicholson

Microgreens are young seedlings valued for their color, flavor, and nutrient density. These traits are strongly influenced by environmental conditions during cultivation. Previous research has demonstrated that UV exposure and compost tea supplementation can affect anthocyanin production. However, the effects of UV exposure on betalain synthesis still remain unclear. Black soldier fly larvae (BSFL) frass tea is a nutrient-rich and eco-friendly biofertilizer derived from insect excrement and residual feed that contains beneficial microbes and is of growing research interest. The objective of this study is to evaluate how UV exposure and BSFL frass tea influence betalain pigments, chlorophyll concentration, nutrient composition, and antioxidant activity in bull's blood beet microgreens.

Beet microgreens were grown for seven days under UV-passing or UV-blocking greenhouse films. The microgreens were grown with water, nutrient solution, or BSFL frass tea. Microgreens harvested on day seven were analyzed for dry matter, nitrogen, ash, betalains, and chlorophyll concentration. Antioxidant activities of aqueous extracts were also assessed. Data were analyzed using ANOVA followed by Tukey's HSD test ($\alpha = 0.05$).

UV exposure did not affect betalain content except in plants grown with nutrient solution, where it suppressed betalain production. As expected, UV exposure also reduced chlorophyll levels across treatments. BSFL frass tea supplementation enhanced reducing power and ABTS radical scavenging activity, particularly under UV exposure, suggesting improved stress resilience and antioxidant potential. These findings indicate that BSFL frass tea may enhance the nutritional quality of beet microgreens and help optimize growing conditions in controlled environments.

POSTER

Speaker

F

Franchesca Nicholson

Lead Presenter | F - 2

From Binding to Muscle: Characterizing MEF2-Mediated Gene Regulation During Myoblast Differentiation

9:00 AM – 10:55 AM

UNDERGRADUATE

Muscle development in Drosophila provides an ideal model for dissecting the transcriptional networks that guide cellular differentiation and tissue morphogenesis. Central to this process is Myocyte Enhancer Factor 2 (MEF2), a conserved member of the MADS-box family of transcription factors that activates numerous genes required for muscle differentiation. Previous over-expression studies in adult myoblasts have shown premature activation of muscle structural genes such as Myosin heavy chain (Mhc) and bent (bt). However, the relationship between MEF2 protein abundance in adult myoblasts and its direct genomic binding activity remains incompletely understood.

In this study, we show that knocking down epigenetic regulators such as components of the Nucleosome Remodeling Deacytylase Complex (NuRD) results in the premature activation and expression of muscle structural genes, suggesting that in myoblasts MEF2 is bound to DNA but prevented from activating target genes . Next, we will identify genome-wide MEF2 binding sites within the wing imaginal disc myoblasts using a combination of protein-level analyses and chromatin immunoprecipitation sequencing (ChIP-seq). These studies will define how MEF2 abundance correlates with its DNA occupancy and transcriptional regulatory function. By integrating these results, this work will clarify how MEF2 promotes molecular binding into developmental outcomes and uncovers potential co-regulators that modulate its expression.

POSTER

Speaker

J

Jaycie Levar

Lead Presenter | F - 2

Effect of BSFL frass tea and UV light exposure on growth performance of beet microgreens

9:00 AM – 10:55 AM

UNDERGRADUATE

Microgreens are increasingly valued for their rapid production cycle, concentrated nutrient content, and potential role in sustainable food systems. Identifying environmentally responsible inputs that can maintain or enhance microgreen yield is therefore an emerging area of interest. Black soldier fly larvae (BSFL) frass tea, produced from insect-derived organic waste streams, has gained attention as a nutrient-rich, microbially active biofertilizer that could reduce reliance on synthetic fertilizers. Similarly, ultraviolet (UV) light exposure has been shown to influence plant growth, pigment development, and stress responses, yet its effects on betalain-rich beet microgreens remain understudied.

This study investigated how BSFL frass tea and UV exposure on the growth performance of bull's blood beet microgreens. Microgreens were cultivated in water, nutrient solution, or BSFL frass tea for seven days under UV-transmitting or UV-blocking greenhouse films. Daily stem elongation was recorded, and leaf area and aboveground and belowground biomass were quantified at harvest. Environmental conditions along with pH and salinity changes in the growing medium were monitored. Data were analyzed using analysis of variance followed by Tukey's honestly significant difference test ($\alpha = 0.05$).

BSFL frass tea enhanced stem length, leaf area, and biomass compared to water, demonstrating its capacity to supply essential nutrients during plant growth. However, the nutrient solution consistently produced the greatest growth across parameters, suggesting that the organic nitrogen in frass tea was less bioavailable. UV exposure did not induce strong interactive effects with fertilization treatments, and no significant differences in biomass were observed between UV and non-UV conditions. Overall, BSFL frass tea shows promise as a sustainable fertilizer for microgreen production, though improvements in nutrient availability or supplementation strategies may be required to achieve performance comparable to conventional nutrient solutions.

POSTER

Speaker

Jhadee Lynn Mendoza
Lead Presenter | F - 2

Protein language model-based prediction of allergens in Arthrospira platensis

9:00 AM – 10:55 AM

UNDERGRADUATE

Arthrospira platensis is a widely consumed cyanobacterium. We screened 281 non-redundant A. platensis proteins from UniProt using the protein language model pLM4Alg. Three proteins were predicted as highly likely allergens (probability > 0.9): the C-phycocyanin β-subunit, superoxide dismutase (SOD), and a 23-residue N-terminal peptide of LON peptidase. The C-phycocyanin β-subunit is a reported food allergen. AllerCatPro suggested weak evidence for SOD, with potential cross-reactivity to Timothy grass pollen allergen. Although the N-terminal peptide of LON peptidase was predicted to be an allergen, the intact protein was not. This peptide, especially its epitope, is largely buried in the folded protein. It may only be recognized when present as a free peptide. To explore distinguishing properties despite the small number of positives, each allergen was compared with 40 randomly sampled non-allergens, using 2,000 bootstrap replicates to obtain stable effect-size estimates. Bootstrapped median percentiles indicated allergens were above the 80th percentile of negatives for alanine, serine, and α-helix content, and below the 20th percentile for pI, molecular weight, isoleucine, and glutamine. Cliff's δ effect sizes reached +0.78 for alanine content (95% bootstrap CI 0.50−0.95) and −0.82 for pI (CI −0.90 to −0.70). Consistently, permutation tests (10,000 iterations) confirmed significant separation for alanine ($P = 0.015$), α-helix ($P = 0.021$), serine ($P = 0.040$), molecular weight ($P = 0.040$), glutamine ($P = 0.028$), isoleucine ($P = 0.018$), and pI ($P = 0.009$). This study validates a known A. platensis allergen, identifies new candidates, and highlights structural and compositional signatures associated with allergenicity. While the small sample size limits generalizability, the workflow demonstrates how resampling-based statistics can provide insights into allergen characterization.

POSTER

Speaker

Liana Feng

Discovering Secondary Phenotypes in Host Mutants that Lack Microbiome Adherence

9:00 AM – 10:55 AM

UNDERGRADUATE

The nematode Caenorhabditis elegans is an exemplary model organism used in biological research due to its transparency, fully annotated genome, short reproductive cycle, and simple microbiome. Despite being invertebrates, C. elegans have intestines with functional similarity to mammals. Given this, C. elegans are a great model system to study gut microbiome bacteria in vivo. Our lab utilizes C.elegans to understand the mechanisms of microbiome bacterial adherence to the gut.

The bacteria Lelliottia jeotgali colonizes the gut of wild-type C.elegans and is characterized as LUAb3 within our lab. LUAb3 was found on campus through ecological sampling and determined to be a commensal bacteria. Through an EMS mutagenesis screen in the host, we looked for mutants that lose L. jeotgali adherence and we discovered 5 novel genes with multiple alleles. These genes were named kola, for knockout of Lellitotia adherence. My project focuses on abcd-6 and abcd-8 alleles in the kola-1 and kola-3 genes, respectively. These mutants show a total loss of adherence to LUAb3 but have no other visible phenotypes. We hypothesized that kola genes function in the gut, therefore double mutants of these genes would result in gut pathology phenotypes.

To create double mutants, we crossed abcd-8 males and abcd-6 hermaphrodites and screened for sexually reproduced progeny. We genotyped F1 and F2 generations with the goal of obtaining progeny that carry homozygous mutations from both abcd-6 and abcd-8. Overall, we successfully created double mutants of abcd-6 and abcd-8. The double mutant displayed the expected phenotypic trait of LUAb3 uncolonized. Unexpectedly, the double mutant had an improvement of growth rate compared to abcd-6, which could be explained by improper backcrossing or suppression of slow growth by the double mutation.

To validate this result, we are crossing another pair of kola-1 and kola-3 mutants to see if we get a similar phenotype or a gut disease. This project can be applied to studying gut dysbiosis in humans, ultimately aiding in the search for effective therapeutics.

POSTER

Speaker

N **Nicole Yarovoy**

The Connection Between Socioeconomic Status and Plants Grown within San Diego Community Gardens

9:00 AM – 10:55 AM

UNDERGRADUATE

Food and nutrition insecurity affect millions of people and San Diego is no exception. One in four residents experience nutrition insecurity, with the greatest burden falling on low income neighborhoods and communities of color (SD Hunger Coalition, 2025). Community gardens are seen as grassroots interventions that support food justice by expanding access to fresh produce, strengthening local food systems, and creating resilience. Yet, gardens vary widely in how - and whether - they contribute to addressing food insecurity. In this project, I investigate two main questions: (1) how does neighborhood socioeconomic status influence plant selection in community gardens?, and (2) how does this influence the capacity of gardens to alleviate food insecurity? I hypothesize that gardens in affluent neighborhoods grow “aesthetic” plants (like roses and butterfly gardens), while gardens in lower income neighborhoods grow edible and "necessary" crops (like lettuce and tomatoes). The latter have a higher capacity to address food insecurity, but are also located in communities where food needs are higher. Using mixed-methods, I draw on audit and interview data from 50 San Diego community gardens collected by Dr. Joassart-Marcelli and her students at SDSU. Quantitatively, I use ArcGIS Pro to map garden locations and connect them to census-tract indicators from the American Community Survey (2025), including racial composition, median income, SNAP enrollment, and gentrification status. I then analyze correlations between garden characteristics and neighborhood demographics. Qualitatively, I conduct 3 garden case studies using interviews, media content, and site visits to explore why plants are chosen and how communities shape garden design. This project offers a nuanced understanding of how community gardens participate in food justice efforts. It contributes to debates about the role of urban agriculture by showing how planting decisions are shaped by unequal socioeconomic contexts - and how these decisions can either reinforce or help mitigate food insecurity in San Diego.

POSTER

Speaker

R **Rachel King**

Lead Presenter | F - 2

F - 3: Engineering and Computer Science (U) 1

9:00 AM – 11:00 AM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

Alexis Tran

Lead Presenter | F - 3

E **Eric Jay Tantay**

Lead Presenter | F - 3

F **Fraser Meagher**

Lead Presenter | F - 3

J **Jianna Gapuz**

Lead Presenter | F - 3

Julia Hong

Mercedyz Anzaldo
Lead Presenter | F - 3

Shezreen Khan
Lead Presenter | F - 3

Wyatt Scott
Lead Presenter | F - 3

Investigating post-fire water quality and harmful algal blooms in California lakes

9:00 AM – 10:55 AM

UNDERGRADUATE

California is experiencing increasingly frequent and intense wildfires due to climate change. Post-fire runoff and sediment are often elevated and contribute to declining water quality in adjacent and downstream streams, rivers, and lakes. This study investigates patterns from in situ water quality data from 63 sites near California lakes which experience harmful algal blooms (HABs). Specifically, we investigated the 2022 Caldwell Fire, 2006 Day Fire, and 2020 Lake Fire, which impacted Tule Lake, Pyramid Lake, and Castaic Lake, respectively. The areas surrounding these lakes are not urban, which limits the contribution of anthropogenic pollutants that may influence HAB activity. This allows us to focus primarily on the impacts of wildfire on HABs. We analyzed available data from 2000-2025 through the National Water Information Systems and the Storage and Retrieval (STORET) Dashboard, which includes water temperature and analytes (chlorophyll a phytoplankton by fluorescence, dissolved or total turbidity, and suspended sediment concentrations) in the lakes to estimate change in the water quality and HAB presence. We also utilized pre- and post-fire precipitation metrics from the California Data Exchange Center. It is anticipated that there will be correlations between high concentrations of analytes and algal bloom formation in the nearby lakes. This study contributes to the greater understanding of how wildfires may impact harmful algal bloom growth in California lakes. These findings and workflow can be used to aid in preventing, managing, and monitoring of HABs for other wildfire impacted lakes.

POSTER

Speaker

Alexis Tran
Lead Presenter | F - 3

User-Friendly Middleware for Pixhawk: Enabling Easy Drone Control with Python APIs

9:00 AM – 10:55 AM

UNDERGRADUATE

With the growing demand for accessible and efficient unmanned aerial vehicle (UAV) and drone programming, both in research and commercial applications, simplifying the development of autonomous drone behaviors on open-source platforms, such as the Pixhawk, has become a critical challenge and opportunity. While existing solutions offer powerful control, they often require deep technical expertise and are not easily comprehensible. This research project presents a Python-based middleware framework for Pixhawk, aimed at enabling straightforward drone actuation and control without the need for extensive hardware knowledge. This API allows users to focus on high-level missions and actuations by simply calling functions, erasing the need to focus on complex script creation. Our approach streamlines high-level drone programming by integrating MAVSDK's API with Python, offering a practical solution for real-time UAV application development. By making modular blocks of scripts, both beginners and researchers may be able to manipulate a drone with freedom to choose their own combination for their specific purpose. The result is a simplified programming model that lowers the technical barrier to UAV development without sacrificing control flexibility. This modular approach enables students, researchers, and developers to focus on autonomy and application design rather than protocol details, positioning the middleware as a scalable foundation for accessible, real-time drone programming.

POSTER

Speakers

Eric Jay Tantay
Lead Presenter | F - 3

Laurel Matthews
Co-Presenter | F - 3

Development of a High Current Conduction-Based Method for Foaming and Expansion of Aluminum Metal

9:00 AM – 10:55 AM

UNDERGRADUATE

This project investigates an electrically driven method for melting and foaming aluminum powder-metallurgy precursors by passing high current directly through solid samples. The aim is to understand how current density, electrode configuration, and enclosure design influence resistive heating, melting behavior, and ultimately the ability to produce metal foam without relying on a furnace.

Initial experiments used a custom metal enclosure and pure aluminum cubic samples to evaluate conduction heating. While current successfully passed through the samples, it was concentrated along a narrow path, resulting in highly localized heating that prevented full melting and foaming. These early tests highlighted the need for improved electrical contact, increased surface area, and better thermal containment to achieve uniform temperature distribution.

After modifying the enclosure and integrating a 1000-amp power supply, the system produced complete melting and significant foam expansion for the first time. Although the resulting foam was partially crushed by part of the enclosure, the test clearly demonstrated that high-current conduction can generate the thermal energy required for aluminum foaming. This result represents a major step toward validating conduction-based foaming as a feasible alternative to traditional furnace heating.

The next phase of the project will involve designing a new enclosure that protects the sample during expansion while maintaining stable electrical and thermal conditions. Future work will further refine contact geometry, improve current distribution, and allow the foam to grow freely without mechanical interference. These developments aim to establish a more controlled, efficient approach to aluminum foaming and contribute to a better understanding of electrically induced melting and thermal transformations in metallic systems.

POSTER

Speaker

Fraser Meagher

Lead Presenter | F - 3

Exploring Image Masking for Adaptive Intelligent SLAM

9:00 AM – 10:55 AM

UNDERGRADUATE

ORB-SLAM3 is a state-of-the-art visual-inertial SLAM system capable of real-time operation across diverse environments. While ORB-SLAM3 handles multiple sensor types in a single framework, its efficiency can still be improved. Prior work introduced OASIS, a masking method that balances compute cost and worst-case trajectory accuracy. In this context, masking is done by restricting feature extraction to a fixed block in the central region of the image, reducing processing time. However, the impact of alternative masks remains unexplored. This project investigates those gaps by assessing lightweight masking strategies in ORB-SLAM3. Several masking schemes include random cell activation, linear stripe masks, and simple structured masks which are implemented within the ORB-SLAM3 architecture. These masks are evaluated based on absolute trajectory error (ATE) and relative pose error (RPE) from ground truth and frame processing times. Experimental results show that while our masking strategies improve ATE compared to OASIS, they yield higher RPE values and slower frame processing times. This indicates that the proposed masks improved final map localization, but did so less cleanly, with noisier intermediate tracking and slower frame processing. Therefore, the masks are advantageous for applications focused on final map accuracy, though they remain suboptimal for real-time localization. This tradeoff underscores the need for further optimization in lightweight masking design.

POSTER

Speaker

Jianna Gapuz

Lead Presenter | F - 3

3D Printing of Bioinspired Flame Retardant Structures

9:00 AM – 10:55 AM

UNDERGRADUATE

Boron nitride (BN) reinforced resin composites offer a promising route to firefighter helmets that are lighter, tougher, and more resistant to heat and flame than conventional materials. This project investigates a nacre-inspired, “brick-and-mortar” architecture fabricated via rotation-blade casting–assisted stereolithography, in which aligned BN platelets are embedded within photocurable resins. Building on prior work in Dr. Yang Yang’s Additive Manufacturing Laboratory, our team develops and evaluates 3D-printed BN/resin composites designed to meet or exceed NFPA 1971 standards for structural firefighting helmets. Two resin types, a low-viscosity flame-retardant resin and a high-temperature resin, are combined with varying BN weight fractions. Trade studies identify optimal BN ranges of approximately 20–40 wt% for the high-viscosity resin and 5–20 wt% for the low-viscosity resin, balancing 3D printability, reproducibility, cost, and performance. Standardized test specimens are printed using a Phrozen Sonic Mini 8K for prototyping and the Cera RAY Ceramic 3D Printer & the Elegoo Mars 4 Ultra for nacre-like microstructures. Mechanical performance is characterized through compression tests (ASTM D695), Charpy impact testing (ASTM D6110), and fracture toughness measurements using single-edge notched bend specimens, complemented by microscopic and SEM analysis of crack deflection, BN platelet pull-out, and bridging mechanisms. Thermal behavior is assessed via one-dimensional heat conduction experiments and cone calorimeter testing under NFPA 1971-relevant exposure (≈260–280 °C), enabling calculation of thermal conductivity and heat flux attenuation. This work highlights the most promising BN/resin formulations, linking their nacre-inspired microstructures to measure mechanical and thermal performance, and assessing their viability as next-generation flame-retardant composites for firefighter helmet shells.

POSTER

Speakers

J **Julia Hong**

A **Alex Kownacki**

Co-Presenter | F - 3

Resilience of Biopolymer-Amended Regolith Under Extreme Thermal Cycling

9:00 AM – 10:55 AM

UNDERGRADUATE

This study investigates the thermo-mechanical performance of xanthan gum (XG)–stabilized lunar regolith simulant under simulated lunar thermal cycling. Developing resilient, in-situ resource–based construction materials is essential for long-duration lunar operations. XG, a biopolymer that enhances soil cohesion and can be produced from organic waste, offers a sustainable alternative to cementitious binders. Regolith samples that were amended with 1% and 2% XG by dry weight were subjected to repeated temperature fluctuations between −85 °C and 120 °C to simulate lunar day to night transitions. Mechanical behavior was evaluated through unconfined compression testing following each cycle. Results indicate that XG-treated regolith maintained over 70% of its initial strength after four thermal cycles, demonstrating substantial resistance to thermal fatigue. While higher XG content yielded greater peak strength, moderate concentrations provided better stability. These findings support XG-stabilized regolith as a promising, ISRU-compatible material for durable lunar infrastructure.

POSTER

Speaker

M **Mercedyz Anzaldo**

Lead Presenter | F - 3

Ultrasonic Characterization of Biopolymer-Amended Regolith in Extraterrestrial Infrastructure

9:00 AM – 10:55 AM

UNDERGRADUATE

NASA, federal space agencies, and commercial partners are working to establish a sustained presence on the Moon. Achieving this requires durable structural materials capable of withstanding harsh extraterrestrial conditions. Ensuring the performance and longevity of materials such as lunar concretes is challenging due to extreme environmental demands, making rigorous in-situ quality control essential. Nondestructive testing (NDT) methods like ultrasonic pulse velocity (UPV) enable real-time evaluation of material integrity without compromising structural viability.

Ultrasonic waves behave differently in atmosphere versus vacuum. In air, attenuation, scattering, and energy leakage reduce signal clarity, and coupling gels are needed for proper transducer contact. In vacuum, reduced attenuation may improve transmission, but conventional transducers and couplants fail or behave unpredictably. Before developing vacuum-compatible ultrasonic methods, it is essential to characterize baseline wave behavior within these new materials under atmospheric conditions.

This study examines the UPV response of lunar regolith–xanthan gum composites containing 1–4% biopolymer by weight. Using 1 MHz longitudinal and shear transducers, velocities were measured and used to estimate dynamic Young's and shear moduli with 1D and 3D formulations. These baseline properties provide insight into small-strain stiffness and wave propagation prior to testing under thermal-vacuum extremes.

Results show that higher xanthan gum content decreases both longitudinal and shear velocities, indicating reduced stiffness. The 1D formulations consistently overestimate stiffness relative to 3D analyses, highlighting the influence of Poisson's ratio and the importance of accurate modeling.

Ensuring the structural integrity of extraterrestrial construction materials is critical for astronaut safety and for extending the lifespan of lunar infrastructure. Future work will evaluate alternative coupling methods, the effect of specimen geometry, and vacuum effects on wave propagation.

POSTER

Speaker

Shezreen Khan
Lead Presenter | F - 3

Airfoil Thickness Effects on Separated Flow for Low Aspect Ratio Blades at Low Reynolds Number

9:00 AM – 10:55 AM

UNDERGRADUATE

This project conducts water tunnel experiments on the effect of airfoil thickness on the separated flow over low aspect ratio blades with a low-to-moderate chord-based reynolds number. Three symmetric NACA airfoils with thickness to chord ratios of 12, 18, and 24 percent are tested at a constant angle of attack of 4 degrees. The dominant flow structures in the wake are measured and visualized using dye-injection flow visualization. A literature survey showed that thickness can influence flow behavior, but the outcome varies with test conditions, making a controlled comparison necessary. Long tubular structures tend to produce wake patterns that bend in the spanwise direction. Increasing thickness is expected to enhance this bending. Experiment will provide conclusive evidence which we will discuss in this presentation. Future studies will focus on flow separation and vortex behavior on cambered airfoils.

POSTER

Speakers

Wyatt Scott
Lead Presenter | F - 3

Ethan Straw
Team Member | SDSU Rocket Project

F - 4: Behavioral and Social Sciences (U) 1

9:00 AM – 11:00 AM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

Ana Rodriguez
Lead Presenter | F - 4

Cheney Crowe

Eleanor Chun

Halle Rodriguez
Lead Presenter | F - 4

Kelsey Lam
Lead Presenter | F - 4

London Gibbs
Lead Presenter | F - 4

Olivia Skirpstunas
Lead Presenter | F - 4

Victoria Gutierrez
Lead Presenter | F - 4

Social Determinants of Health & Medication Adherence in Hispanics with DMT2 in E-Health Intervention

9:00 AM – 10:55 AM

UNDERGRADUATE

Hispanics face a higher risk of type 2 diabetes mellitus (T2DM) and inadequate medication adherence, contributing to poor glycemic management, heightened risk of complications, and death. This abstract aims to explore the association between social determinants of health (SDoH) and self-reported medication adherence within an E-Health intervention. Participants (N=178) were predominantly Mexican, Spanish-speaking, immigrant adults with T2DM at a federally qualified health center (FQHC), who were enrolled in a randomized controlled trial for a healthcare delivery model that integrated behavioral health, care coordination, primary care, and E-Health education videos. At baseline, participants self-reported SDoH—education level, housing status, income, transportation access, employment status, insurance, social support, and sleep—and medication adherence on the Adherence to Refills and Medication scale for Diabetes (ARMS-D; range 0 to 33; lower scores = better adherence). Overall SDoH conditions (OSDoH) were assessed using the Protocol for Responding to and Assessing Patient Assets, Risks, and Experiences (PRAPARE) tool. Multivariable linear regression models assessed associations between SDoH, OSDoH, and medication adherence. Participants' mean age was 57.8 years; they were predominantly female (71%), married or partnered (53%), had less than a high school education (61%), and were unemployed (61%). After controlling for covariates, housing status (B=2.63, 95% CI: 0.69, 4.57, p=0.01), transportation access (B=-1.51, 95% CI: -2.65, -0.38, p=0.01), and sleep (B=-0.35, 95% CI: -0.66, -0.04, p=0.03) were significantly associated with medication adherence, but OSDoH (B=0.14, 95% CI: -0.08, 0.37, p=0.20) was not significant. Poor medication adherence was significantly associated with SDoH, specifically unstable housing, limited transportation access, and insufficient hours of sleep. These findings highlight the importance of addressing SDoH in interventions to improve diabetes outcomes and overall well-being for Hispanics who face medication adherence barriers.

POSTER

Speakers

Ana Rodriguez
Lead Presenter | F - 4

Fernando Arredondo Zepeda
Co-Presenter | F - 4

Dual Food and Housing Insecurity: Compounding Effects on Children's Mental Health

9:00 AM – 10:55 AM

UNDERGRADUATE

Food and housing insecurity are related to poor mental health in children independently, but less is known about how combined forms of insecurity affect mental health. Understanding the impacts of this overlap is essential for prevention strategies.

This analysis uses nationally representative data from the 2022 and 2023 National Children's Health Study to investigate the prevalence of food and housing insecurity among US children ages 0 to 17, and to link both types of insecurity to children's mental health.

Housing insecurity was measured using parent reports of missing a rent or mortgage payment, 3+ residential moves, and concerns about being evicted in the past year. Food insecurity was measured based on parent report of not being able to afford enough food to eat in the past year. Mental health was measured using parent-reported binary indicators of anxiety and/or depression diagnosis, and behavior problems. Prevalence of one or both types of insecurity was analyzed, and logistic regression models tested for the independent and combined effects of food and housing insecurity on children's mental health, adjusting for sociodemographic factors.

Preliminary analyses show that housing and food insecurity were associated with 1.5 to 3.8x the likelihood of mental health problems. Experiencing both types of insecurity (compared to neither) was associated with increased odds of anxiety (OR = 2.59, $p < .001$), depression (OR = 3.82, $p < .001$), and behavior problems (OR = 3.39, $p < .001$). Relative to those experiencing just housing insecurity, experiencing both types of insecurity was associated with increased odds of anxiety, depression, and behavior problems. However, there was no significant difference in mental health outcomes between those facing just food insecurity versus both types of insecurity.

Findings highlight the need for multilevel interventions to directly address social determinants of health among children using a prevention rather than reaction model. Professionals could screen for both insecurities during check-ups and connect families to resources.

POSTER

Speaker

Cheney Crowe

Ventral Striatum – Mid-Insula Functional Connectivity and Social Skills in Autism Spectrum Disorder

9:00 AM – 10:55 AM

UNDERGRADUATE

Social connection is a fundamental human need that strongly influences development and well-being. Individuals with Autism Spectrum Disorder (ASD) often face challenges with social skills, including initiating and maintaining conversations, which can disrupt social connection. It is unclear whether and how neural underpinnings of social skills differ between ASD and typically developing (TD) individuals. Functional connectivity (FC) between the ventral-striatum (VS) and middle-insula (MI) has been shown to be important in social skills in adults. Previous studies in ASD populations have reported differences in these regions as well. Based on these findings, the present study examined differences in the relationship between VS-MI FC and social skills in ASD, TD, and non-TD (i.e. not TD but also not meeting ASD diagnostic criteria) groups. We hypothesized that the relationship between VS-MI FC and social skills would differ between the ASD and TD/non-TD groups, given that ASD is associated with distinct social and neural processing patterns. In the present study, 72 children (ages 6-11, M age = 8.48 years, 48.61% female) underwent an fMRI scan and viewed an animated short film featuring social interactions and emotions of two characters while their parents completed the Social Response Scale (SRS) -- a 65-item scale that assesses social skills and autistic mannerisms, with higher scores indicating greater social impairment. Our results revealed a positive correlation between the VS-MI FC and SRS Scores in the ASD group, meaning stronger VS–MI FC was linked to greater social impairment. Interestingly, the opposite pattern emerged in the TD groups, such that higher VS-MI FC was associated with less social impairment. Research with TD samples indicate that VS-MI FC decreases with age and can even become negative. Current findings suggest that VS-MI FC maturation within ASD individuals may not follow this pattern. In other words, FC being significantly higher in the ASD vs TD group may have consequences for social skill development.

POSTER

Speaker

E **Eleanor Chun**

Word Learning in Children with Language Learning Difficulties

9:00 AM – 10:55 AM

UNDERGRADUATE

Word learning involves resolving referential ambiguity and revising initial mappings when presented with new, conflicting information (McMurray et al., 2012). Children with disabilities such as hearing loss (DHH) or intellectual disability (IDD) often develop a secondary language disorder, hindering word learning, a skill that underlies broader language development. Prior research suggests that children with smaller vocabularies struggle to revise incorrect word-referent maps while those with larger vocabularies more flexibly update their understanding and revise their maps when information is added (Denicola-Prechtl et al., 2023). Although both IDD and DHH children are known to exhibit word learning deficits, little is known about where these breakdowns occur. This study seeks to advance the understanding of word learning processes in these groups and how the characteristics of their diagnoses influence their points of word learning breakdown.

Participants were children aged 5-8 years who were IDD, DHH, or typically developing. All completed a word learning task in which children developed new word-referent pairings, and information was provided either to reinforce the child's initial mapping or, in 50% of trials, to contradict it, requiring revision. This task assesses the ability to resolve referential ambiguity and revise initial mappings.

We will evaluate word learning processes by calculating the percentage of trials in which each participant successfully or unsuccessfully revises their definitions. We hypothesize that IDD children will be less likely than DHH children to revise their initial word mappings when given contradictory information. In contrast DHH children may create maps that they will revise, taking even reinforcing feedback as a cue to revise. However, even when revising initially correct maps, they will ultimately have a correct map when all feedback is provided. Findings from this research will provide a foundation for developing targeted interventions by identifying and intervening at specific points in the word-learning process.

POSTER

Speakers

H **Halle Rodriguez**
Lead Presenter | F - 4

D **Devin Besselman-Goldes**
Co-Presenter | F - 4

Morphosyntax in Autistic Youth and Young Adults Varying in Language Skills

9:00 AM – 10:55 AM

UNDERGRADUATE

While morphosyntax characterizes language impairment (LI), little is known about morphosyntax in autism beyond childhood. Building on prior work, we examined finiteness (tense and agreement) marking in English, a key dimension of morphosyntax acquired in early childhood and clinical marker of LI, in sentence repetition and production tasks of autistic youth and young adults with (ALI) and without LI. This study asked 1) Do groups differ in percent grammatical utterances (PGU), percent utterances with zero marking/omission of overt marking, and wrong tense? 2) Do groups differ in percent overt marking of specific morphosyntactic structures? Participants were 104 individuals (11-30 years) fluent in General American English, meeting DSM-5 criteria for autism. Measures were standardized tests for language (CELF-5), IQ, and autism traits. LI was defined as -1.25 SD on CELF-5 core language; ≥2 CELF-5 subtests, or; ≥2 measures of expressive and receptive language, vocabulary, and nonword repetition. Outcomes were effect sizes for group differences in PGU, omission, wrong tense, and overt-marked structures (third-person singular, past-tense, auxiliary/copula BE, and auxiliary DO) on CELF-5 Formulated Sentences and Recalling Sentences. Data were analyzed using Mann-Whitney U-tests ($p<.05$), Bonferroni adjustment ($p<.025$), and interpretation of effect sizes as 0.25 small, 0.55 medium, and 0.95 large. Groups did not significantly differ in mean number of utterances on sentence production or sentence repetition. ALI had lower PGU on production and repetition. Groups did not differ in omission or wrong tense on either task. Considering morphosyntactic structures, group differences were limited. ALI had significantly lower overt marking across all structures combined on both tasks. Findings indicate no one-to-one ratio between cognitive ability and morphosyntax; however, finiteness may remain challenging beyond childhood. Future work is needed to understand finiteness-marking in production versus repetition and how omission impacts other aspects of language-based interactions.

POSTER

Speaker

Kelsey Lam

Lead Presenter | F - 4

Evaluating Environmental Justice in EPA Brownfield Grant Allocations

9:00 AM – 10:55 AM

UNDERGRADUATE

This project examines whether the U.S. Environmental Protection Agency's (EPA) Brownfields Grant Program equitably distributes grant funding among diverse organization types and communities, with a focus on environmental justice. Brownfields are previously used industrial or commercial lands that are contaminated or potentially contaminated, and may be in need of environmental remediation.The study examines brownfield grant awards from 2018 to the present to understand how awards were made across demographic and institutional lines, potentially favoring certain applicant types such as city or county governments over non-profit or tribal entities.Using publicly available EPA grant award data, the analysis categorizes recipients by applicant type (e.g., local government, nonprofit, tribal, or regional council), year, applicants' tax-exempt status, and geographic region. We expect to use descriptive statistics and chi-square tests to compare selection rates among applicant groups. Regression analysis may explore correlations between award likelihood and community demographics (e.g., income level, race, or EPA region). We are particularly interested in the relative grant application success rates of local governments and regional councils versus non-profit and tribal applicants. Historically, the largest share of funding has flowed to local governments and regional councils. Some research suggests that in order to produce more environmentally just outcomes, funding should be prioritized for non-profit organizations and tribal organizations working in low-income and racially marginalized communities. We aim to use our data to further investigate how existing brownfield grant structures support communities and environmental justice aims.

POSTER

Speaker

London Gibbs

Lead Presenter | F - 4

Children's Perceptions of Socioeconomic Mobility and Inequality

9:00 AM – 10:55 AM

UNDERGRADUATE

Beliefs about the attainability of upward social mobility, defined as moving up the socioeconomic status (SES) ladder in adulthood, may affect children's future wellbeing, and have been shown to differ across socioeconomic groups. Among higher-SES individuals, social mobility beliefs can be used to justify inequality, but among lower-SES individuals, believing in mobility can support educational achievement and mental health. Prior research has not covered what children think, in their own words, about social mobility within their life and community.

To explore children's beliefs about social mobility, we conducted surveys at San Diego libraries. Participants (N=180) were between 5 and 16 years old (Mage = 8.7, 50% Hispanic, 14% Asian, 14% White, 13% Black, 5% Native Hawaiian or Pacific Islander, 4% other; 44% male, 56% female; parent-reported annual household income ranged from less than $10k to $250k, with a median of $100-150k). Using a child-adapted version of the subjective social status ladder, we asked children where they are now, where they think they will be in the future, and an open-ended question about why. Survey interviews were recorded and transcribed, this paper analyzes the open-ended responses. Using qualitative thematic analysis, we developed and applied 37 codes, using consensus coding to achieve inter-rater reliability.

Preliminary findings show children have complex perceptions about social mobility. Many brought up money, financial struggles, income, rent, and the economy. Themes of education and future career plans were common, suggesting children are aware of the impact education has on their future. Children described support from family members, placing emphasis on values unrelated to money like niceness and hard work as key to future success. Future analyses will link the qualitative themes to quantitative survey data to understand how mobility beliefs differ according to household socioeconomic status. Learning what children think about social mobility provides insight to address economic and education opportunity gaps.

POSTER

Speakers

O **Olivia Skirpstunas**
Lead Presenter | F - 4

S **Sydney Hant**
Co-Presenter | F - 4

Depression contributes to cognitive intra-individual variability scores in unimpaired older adults

9:00 AM – 10:55 AM

UNDERGRADUATE

As the population of aging adults expands rapidly, early detection of Alzheimer's disease and related dementias (ADRD) becomes increasingly important. Current assessments of ADRD involve a plethora of cognitive and genetic testing. However, the cost of these assessments is not equally accessible for all. Previous research studies have provided evidence for a promising cognitive marker (cognitive intra-individual variability) that may be a helpful and accessible alternative. However, factors affecting cognitive intra-individual variability (IIV) are still being explored. Depression in the aging population is prominent and has been associated with worse cognitive performance and neural dysfunction. The present study aims to examine the effect of depression on cognitive IIV (dispersion). There were 20,374 participants from the National Alzheimer Coordinating Center (NACC) database. All participants underwent neuropsychological testing assessing cognitive performance in different domains, a depression screening (Geriatric Depression Scale (GDS)), and self-reported depressive symptomatology. Participants were cognitively normal (90.2%) or impaired, not Mild Cognitive Impairment diagnosis (9.8%). The mean age of the participants was 72.68 (SD = 7.59), most were female (65%) and Non-Hispanic White (76%). Linear regression models examined associations of depression with IIV, adjusting for demographics. Our results showed that a higher score on the GDS was associated with worse global IIV ($p < 0.001$) and executive function ($p < 0.001$) IIV, but not memory or language. When measuring cognitive IIV as a coefficient of variance, we found that a higher score on the GDS was associated with worse global IIV ($p < 0.001$), memory ($p < 0.001$), executive function ($p < 0.001$), and language ($p < 0.001$) IIV. Depression is associated with worse cognitive IIV in cognitively normal older adults. Our findings are consistent with current literature suggesting that depression impairs cognitive skills. Future research on cognitive IIV and depression should include a racially diverse sample.

POSTER

Speaker

V **Victoria Gutierrez**
Lead Presenter | F - 4

F - 5: Behavioral and Social Sciences (U) 2

9:00 AM – 11:00 AM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

A **Angelica Duarte**
Lead Presenter | F - 5

Aubrey Cabigao
San Diego State University

C **Caitlin Pearson**
Lead Presenter | F - 5

Connor Silverstein
Lead Presenter | F - 5

Cristina Campos
Lead Presenter | F - 5

Haylie Paris Caguioa
Lead Presenter | F - 5

Ileana Andrade
Lead Presenter | F - 5

Madelin Gredvig
Lead Presenter | F - 5

Resources for Parent Scholars Experiencing Housing Insecurity: Community College vs University

9:00 AM – 10:55 AM

UNDERGRADUATE

Students experiencing housing insecurity are steadily increasing across college campuses. Many remain unseen and underserved due to the stigma around homelessness and the limited systems for identifying these students (Vasquez et al., 2019). Parent scholars—students with children or dependents—are even less visible, as they are often not represented in institutional data (Rivera-Suamataia, 2024).

The purpose of this study is to understand how parent scholars experiencing homelessness navigate and access campus resources. Prior research shows that students facing housing insecurity often lack awareness of available support or underutilize it (Gupton, 2017; Hallet et al., 2018; Wright et al., 2020). This proposal seeks to explore whether community colleges and universities differ in the resources they offer and how these supports can become more accessible for parent scholars.

Research Questions:

(1) How do parent scholars experiencing housing insecurity navigate housing resources at community colleges compared to universities?

(2) How do campuses communicate, present, and advertise available resources to the students who need them?

Methodology & Methods:

This comparative case study examines how parent scholars interact with housing resources across two institutional contexts: a community college and a university. Grounded in Social Capital theory and informed by narrative inquiry, the study aims to increase visibility for these populations while expanding participants' social capital. Interviews will be conducted using a humanizing approach in which participants receive a complimentary hair service during the conversation, ensuring the process is mutually beneficial and centers their lived experiences.

Significance:

This work calls on postsecondary institutions to examine how power and privilege shape students' access to basic needs support. By highlighting the experiences of parent scholars facing homelessness, the study aims to reimagine more equitable and accessible resource structures across campuses.

POSTER

Speaker

Angelica Duarte
Lead Presenter | F - 5

Brief Behavioral Therapy Impacts Treatment Satisfaction by Improving Youth Anxiety and Functioning

9:00 AM – 10:55 AM

UNDERGRADUATE

Youth anxiety and depression are prevalent, disabling, and require effective intervention. Several treatments address such impairments, with transdiagnostic therapy emerging as an effective intervention. Low parent satisfaction with services is linked to treatment drop-out and poor engagement; yet, few transdiagnostic treatment studies have assessed these factors. The research aim was to determine if parent satisfaction with a brief, transdiagnostic treatment for youth internalizing symptoms was mediated by improved youth anxiety and functioning. The current study utilized archival data from the Brief Behavioral Therapy (BBT) randomized trial, in which BBT outperformed community-based care (ARC) on youth anxiety and functioning and parent satisfaction with therapy. Youth (N=185), aged 8-17, received 8-12 sessions of BBT or referral to community care. The Pediatric Anxiety Rating Scale (PARS) was used to assess anxiety, the Children's Global Adjustment Scale (CGAS) to assess functioning, and the Children's Depression Rating Scale (CDRS-R) to assess depression. Parents also completed the Client Satisfaction Questionnaire (CSQ-8). Three mediation models were tested using Mplus to examine the indirect effects of BBT on parent satisfaction at follow-up through post-treatment (A) anxiety, (B) functioning, and (C) depression. In model A, BBT impacted Week-16 PARS ($\beta = 0.244$, $p = .001$) and, in turn, PARS impacted Week-32 CSQ-P ($\beta = -0.191$, $p = .035$). In model B, BBT impacted Week-16 CGAS ($\beta = -0.290$, $p < .001$), and CGAS impacted Week-32 CSQ-8 ($\beta = 0.219$, $p = .018$). Last, in model C, there was no significant effect of BBT on CDRS, and similarly, there was no significant effect of CDRS-R on CSQ-8. Taken together, BBT outperformed community care and indirectly impacted parent satisfaction through its effect on youth anxiety and functioning. The present study demonstrates BBT's superiority and utility in enhancing youth outcomes and its potential as an alternative to long-term care, especially for underserved youth with limited access to the current standard of care.

POSTER

Speaker

Aubrey Cabigao
San Diego State University

Examining the Impact of Aging and Testing Language on the Stroop Task in Deaf ASL-English Bilinguals

9:00 AM – 10:55 AM

UNDERGRADUATE

One method for early detection of neurodegenerative diseases like Alzheimer's Disease (AD) are neuropsychological assessments like the Stroop task. Performance on the Stroop task is sensitive to AD, with participants who would later be diagnosed with AD performing significantly worse on incongruent trials than cognitively healthy peers (Balota et al., 2010). Previous research on spoken-language bilinguals suggests performance on the Stroop task may be modulated by participants' language proficiencies (Tse & Altarriba, 2012; Rosselli et al., 2002), and that performance is impacted by dominance of the testing language. There have been few attempts to develop an American Sign Language (ASL) Stroop task. In one study with deaf ASL-users performing an ASL Stroop task, Dupuis and Berent (2015) found significant Stroop effects; participants showed slower and less accurate responses to incongruent trials, when the color of the hand does not match the color signed in the dynamic video. In a recent study, Bosworth et al. (2021) found deaf signers show Stroop effects in both ASL and English, with the magnitude of ASL Stroop effects correlating with ASL proficiency. Both studies on ASL Stroop effects had small numbers of participants (N = 10, N = 15), calling for further investigation to better inform clinical testing. The current study analyzed Stroop effects among two age groups (N = 81), younger (age 18-45) and older (age 65-90), of deaf signers to investigate the impact of aging and test language on performance. Participants completed two computerized Stroop tasks with stimuli presented in ASL or English. Results revealed larger Stroop effects in older participants, aligning with previous research. Additionally, Stroop effects were stronger in English than ASL for both age groups. We also see greater reaction times in ASL than English, potentially due to differences in the languages' modalities. Understanding the impact of aging and testing language on the Stroop task in Deaf ASL-English bilinguals allows for better-informed future clinical practices.

POSTER

Speaker

Caitlin Pearson

Lead Presenter | F - 5

A Qualitative Analysis of the Incorporation of Research into the Classroom among STEM Faculty

9:00 AM – 10:55 AM

UNDERGRADUATE

At research-active institutions, research is a focal point for STEM faculty, therefore it is important to understand how faculty members' dual roles in research and teaching spaces may connect. The research questions posed in our study include to what extent do STEM faculty incorporate research into their curricula and how do teaching experiences influence faculty members in their research?

We hypothesize that the connection is apparent from research to teaching; faculty recognize how research informs teaching but report less on teaching on research. Faculty fine tune scientific communication skills in the classroom that are directly applicable to the research process and are able to further understand students' levels through classroom engagement.

The methods used in our study are primarily qualitative. We distributed a four-item, open-ended survey to faculty across the SDSU College of Sciences asking about any perceived relationship between research and teaching. A total of 28 faculty provided responses to survey questions. Follow-up interviews were conducted with faculty interested in elaborating on their survey responses. The qualitative data from survey and interview responses were coded in MAXQDA using both an a priori codebook from previous work by Hua and Shore as well as inductive codes generated by the research team. Data was secondary coded to ensure trustworthiness in code assignments and interpretation.

Analysis indicates that research in the classroom is most often broached as direct examples aligned with course content. Considering how teaching influences research, many faculty recognized that the skills relevant to communicating their research are also important in communicating with students in the classroom. Overall, faculty are likely to see how their research informs the topics covered in class and strive to integrate authentic scientific content into courses. However, there were fewer instances of teaching informing research. A notable exception was for faculty engaged in educational research who perceived more direct connections between their

POSTER

Speaker

Connor Silverstein

Lead Presenter | F - 5

Interpersonal Predictors of Symptom Severity and Burden in Lupus

9:00 AM – 10:55 AM

UNDERGRADUATE

Social connection is increasingly recognized as a protective factor in chronic illness, yet its role in shaping symptom experiences among individuals with lupus remains understudied. The present study examined whether overall social connection and perceived validation from different sources (family, friends, and healthcare providers) predicted symptom severity and perceived burden in a sample of adults with lupus. Participants reported their level of social connection and the extent to which they felt validated by key social partners, along with the number of symptoms they experienced and the average burden associated with those symptoms. Symptom count and burden were entered as dependent variables, with social connection and validation indicators as predictors while accounting for age and gender. I hypothesized that greater social connection and higher levels of partner validation would be associated with fewer symptoms and lower perceived burden. Findings from this study aim to clarify the interpersonal factors that may lessen symptom impact in lupus and further development of interventions that promote supportive relationships.

POSTER

Speaker

Cristina Campos

Lead Presenter | F - 5

Barriers to Licensing Autistic Drivers: Examining Indications of Pursuing Driving in STEER

9:00 AM – 10:55 AM

UNDERGRADUATE

Autistic adolescents and adults often obtain a driver's license less frequently and slower than other populations.However, the reasons for these differences are not well understood. This secondary data analysis research examines differences between autistic individuals who indicated they want to drive compared to those who did not want to drive at the start of a driving program. A total of 82 autistic participants completed the Strategies Transforming Executive- Functioning and Emotional Regulation to Drive (STEER) program. Prior and after the program, participants completed the Driving Cognitions Questionnaire (DCQ) which measured their panic, social, and accident-related concerns when driving. Participants also completed the Driving Attitude Scale (DAS) which measured positive and negative attitudes towards driving. At baseline, participants who indicated they did not want to pursue a driver's license, reported higher negative attitudes towards driving and higher scores on panic, accident, and social concerns compared to those who wanted to obtain a license. Following the completion of the program, autistic participants changed to wanting to pursue a driver's license. The results reveal multiple barriers that autistic drivers may encounter, like higher anxiety and negative attitudes, that can stop them pursuing driving. This highlights the importance of readiness programs like STEER, which can prepare autistic individuals to pursue a drivers permit or license and become drivers.

POSTER

Speaker

H

Haylie Paris Caguioa

Lead Presenter | F - 5

Thirdhand Smoke Pollution and Exposure on the San Diego Blue Line Trolley

9:00 AM – 10:55 AM

UNDERGRADUATE

Thirdhand smoke (THS) is the toxic residue left on surfaces and in dust after smoking stops. These chemicals persist and re-emit into the air, exposing individuals through inhalation, ingestion, and dermal contact, even in smoke-free and vape-free settings.

To examine THS contamination and exposure on public transportation, research staff traveled on the San Diego Metropolitan Transit System (MTS) for two days between the San Ysidro border and the La Jolla Veterans Affairs stops. Airborne nicotine was measured on MTS trains over a three-hour period using silicone wristbands. Surface nicotine was assessed with wipes on trolley seats, and dermal uptake was evaluated through hand wipes collected before and after travel. Samples were analyzed for nicotine using isotope-dilution liquid chromatography-tandem mass spectrometry (LC/MS–MS).

Nicotine was detected across all sample types. Surface levels were 0.66 μg/m² on both collection days. Wristbands worn for 3 hours measured 9.28 ng and 3.81 ng on days 1 and 2, respectively. Hand nicotine increased on day 1, from 2.08 ng pre-ride to 6.44 ng post-ride. On day 2, it increased from 0.73 ng pre-ride to 7.39 ng post-ride. Based on a wristband level observed during a 3-hour trolley ride, we project a nicotine level of 50.7–123.7 ng for 40-hour exposure and 212.8–519.7 ng for a 7-day exposure.

These findings demonstrate that THS contamination is widespread and persistent in the San Diego Blue Line Trolley. While exposure during a single ride is relatively low, MTS staff and frequent riders may be exposed at levels comparable to those of nonsmokers living with a smoker. This research highlights the need for public education and better enforcement of smoke-free and vape-free policies within public transportation.

POSTER

Speaker

I

Ileana Andrade

Lead Presenter | F - 5

Life Stress as a Moderator of Irritability and Neural Reward Processing

9:00 AM – 10:55 AM

UNDERGRADUATE

Prior research has demonstrated aberrant neural reward processing in relation to irritability and early life stress (ELS), respectively, in children and adolescents. However, the interplay among these factors is likely complex and understudied. In this study, we hypothesized that ELS will moderate the relationship between irritability and neural reward processing in early childhood (ages 5-6), and we expected to see this effect manifested in reward processing brain regions (e.g., insula, frontal/prefrontal cortex, etc.). Data from 184 participants (96 female) was selected from the Brains-in-Growth (BIG)-Emotions Study's baseline data collection. ELS and irritability were assessed using the Life Events Scale, adapted from the Adolescent Brain Cognitive Development (ABCD) Study, and the Multidimensional Assessment Profiles Temper Loss Scale (MAPS-TL), completed by their primary caregiver. Reward processing, including both reward anticipation and feedback, was assessed with a child-friendly monetary incentive delay (MID) task during fMRI acquisition. Preliminary results reveal distinct patterns of neural activation and functional connectivity in individuals with different profiles of ELS and irritability. Findings may provide insight into early markers of irritability risk and resilience (e.g., high ELS and high irritability, vs. high ELS and low irritability) in a critical developmental window.

POSTER

Speaker

M

Madelin Gredvig

Lead Presenter | F - 5

F - 6: Engineering and Computer Science (U/G) 2

9:00 AM – 11:00 AM | Location: Montezuma Hall

UNDERGRADUATE/GRADUATE

POSTER

Speakers

Afnan Algharbi
Lead Presenter | F - 6

Denis Bindels
Lead Presenter | F - 6

Gerald M Wolf
Lead Presenter | F - 6

Heather Linard
Lead Presenter | F - 6

Kaden Buehrig
Lead Presenter | F - 6

Kristianna Quijote
Lead Presenter | F - 6

Sabrina Guarin
Lead Presenter | F - 6

Shalayah Webb
Lead Presenter | F - 6

RF-Based Digital Twins for Safe Robot Navigation with Reinforcement Learning

9:00 AM – 10:55 AM

MASTER'S

Autonomous robots use camera and LiDAR sensor systems to navigate their environment. However, both sensor modalities raise personal privacy concerns, and are computationally complex to process. Instead of relying on photographs or visual data, we perform robot navigation using Radio-Frequency-based digital twins coupled with deep reinforcement learning (RL). By placing a simulated transmitter and receiver in the digital twin environment, radio frequency (RF) signals are encoded with extensive information regarding the manner in which electromagnetic radio waves interact with surroundings, including channel coefficients, phase shifts, and varying angular directions. They collectively produce a non-visual representation of an environment for use as a map for RL agents to train on. We use the DT-RaDar dataset to train and test two reinforcement learning algorithms: Deep Q-network (DQN) and Proximal Policy Optimization (PPO) to guide the agents with the navigation based upon their ability to utilize RF information collected from the propagation simulation. Both agents are trained to minimize navigation distance while avoiding obstacles. We determine the minimal RF state required to successfully navigate the environments, and compare the RL algorithms.

POSTER

Speakers

Afnan Algharbi
Lead Presenter | F - 6

Jay Mittal
Co-Presenter | F - 6

Visible and Barely Visible Lighting Strike Damage Assessment via Sparse Ultrasonic C-Scan

9:00 AM – 10:55 AM

UNDERGRADUATE

Within the operational lifetime of aircrafts, lightning strike (LS) events induce significant amounts of damage both on exterior surfaces and within the underlying structure. This incidence poses safety risks and costs, and presents significant challenges for nondestructive evaluation (NDE) in aerospace maintenance. In particular, carbon fiber reinforced polymer (CFRP) skin panels subjected to LS are likely to experience unknown and highly variable damage beyond the visible impact zone. This project analyzes and addresses the incidence of both visible and barely visible LS damage on an aerospace skin panel with extensive damage from a simulated LS event. The overarching goal is to find reliable analytical methods to characterize structural damage for development of industry-applicable ultrasonic NDE inspection methods. The CFRP panel was struck by a controlled current pulse, producing visible paint chip, matrix degradation, fiber breakage, and delamination zones. High-frequency (5MHz) ultrasonic point scanning was used as a diagnostic technique for identifying subsurface damage. Statistical metrics were extracted from the test data, producing a radial and circumferential map of local variations in the waveforms to investigate and characterize LS damage systematically. The ultrasonic inspection technique indicated damage existed outside of the visibly affected region on the panel, demonstrating a strong sensitivity to both visible and invisible internal degradation by successfully distinguishing between delamination, paint chip, and reference/pristine areas. However, identifying subsurface and barely visible damage is still a challenge; consistency of experimental testing and signal processing greatly impact results and necessitate improved solutions to reduce variability and increase robustness. These findings serve as a basis to investigate LS effects on CFRP aircraft structures and will be leveraged to characterize and validate the severity of the panel's damage, aiming to develop field-deployable inspection techniques based on ultrasonic guided wave scanning.

POSTER

Speakers

D **Denis Bindels**
Lead Presenter | F - 6

C **Charles Wang**
Co-Presenter | F - 6

Clocking In Early: Prevalence of Permissive NTP Handling in Public Wi-Fi Networks

9:00 AM – 10:55 AM

UNDERGRADUATE

Public wireless access points that rely on captive portals instead of link layer encryption block general internet traffic until the user authenticates, but they sometimes permit a narrow set of foundational network protocols like DNS and NTP to facilitate the authentication process. When a device connects to an open network its operating system may legitimately initiate an NTP request to ensure an accurate system clock, which is required for establishing secure TLS sessions. A DNS query may be needed to resolve the address of the portal web server.

These channels can be co-opted to transfer other data beyond what is intended by the network operator. Many such implementations exist for DNS, but comparatively fewer for NTP. The authors have created a tool that can transmit arbitrary payloads through synthetic NTP connections. This follow up research examines the real-world utility of such a tool by surveying the proportion of public access points that permit pre-authenticated NTP traffic.

The researchers achieve this by surveying a broad cross section of public access points offered at cafes, retail stores, and transportation hubs within a predefined sampling area centered on the university campus. After establishing a connection but without authenticating with the portal, the client sends a manually triggered standard NTP query to a time server operated by the researchers, and records whether a response is received. The survey traffic is indistinguishable from ordinary clock-synchronization packets. No actual steganographic payloads are sent during the survey and results are reported in aggregate.

This research aims to measure the prevalence of permissive NTP handling on captive-portal networks and assess the risk it poses for bypassing operators' usage policies. In doing so, it shows whether the author's tool is only a novel proof of concept or is usable on real world networks.

POSTER

Speaker

G **Gerald M Wolf**
Lead Presenter | F - 6

Tracking sanitary sewer overflow in urban watersheds using fluorescence-based sensors

9:00 AM – 10:55 AM

UNDERGRADUATE

Urban rivers are increasingly experiencing pollution events that have detrimental effects on human health and the environment, necessitating closer monitoring and regulation. It is crucial to first identify point sources of contamination, such as sanitary sewer overflow events, as fecal contamination commonly exceeds thresholds in urban creeks in the United States. In this project, we deploy real-time fluorescence sensors on Alvarado Creek in San Diego to track these contamination events. Past studies have documented sanitary sewer overflow (SSO), which is a phenomenon that commonly occurs during storm events due to overloading of combined sewer systems (MS4). With this data visibility, we are able to identify multiple water quality fluctuation events occurring during dry weather, including November 15, 2024, December 14, 2024, and most recently on December 8, 2025. We observed an increase in gage height and concurrent increase in tryptophan-like fluorescence (TRP) and humic-like (CDOM) fluorescence intensities during these anomalous events. This pattern is indicative of a discharge source potentially derived from adjacent sanitary sewer systems. Grab sample collection during one of these anomalous events revealed that the increasing discharge had concurrent increase in a notable fecal indicator bacteria. The current study will aim to assess the efficacy of fluorescence-based sensors in tracking contamination events, including SSOs and dry weather water quality fluctuations. This investigation will be useful for ground-truthing in-situ fluorescence sensing outside of baseline conditions. Ultimately, the results of this study will be important for developing early warning of pollution discharge events in urban watersheds that can inform regulation and infrastructure improvement.

POSTER

Speaker

Heather Linard

Lead Presenter | F - 6

Spiderweb Inspired 3D Printing for High Performance Materials

9:00 AM – 10:55 AM

UNDERGRADUATE

In the context of fused deposition additive manufacturing techniques (FDM, 3D Printing), parts manufactured face one main problem, low toughness, a measure of a material's ability to resist fracture. This is due to the layer-by-layer deposition method of printing the part up from the base plate. This stacking is essential as it allows for internal cavities and overhangs, creating near-impossible designs. These layers have low bonding strength (layer to layer strength) which creates a non-uniform strength profile based on direction of force, resulting in low toughness and premature fracture. To solve this issue, inspiration was taken from the intricately intertwined structure of spider silk and its exceptional mechanical properties. An enhanced printing method was created, a three-hole brass nozzle that can rotate twisting strands of filament together, like how spiders use their spinnerets to twist silk. This method has successfully been applied to a modified Fused Deposition Modeling (FDM) 3D printer, complete with custom spinning nozzle, filament, and extrusion process. To test this technology, vertical strands were printed with the twisting method using a set of variable parameters. Each strand was tensile tested, with results leading to higher toughness than control samples. For this research, the control sample is pieces of raw filament from the spool, and the samples are the optimized twisted strands from the machine. At a twisting speed of 400 step/sec, recent testing yields the toughness in MJ/m^3 of the samples as following: Carbon fiber control average is 221.242, PLA control average is 7763.15, the carbon fiber sample average is 7304.59, and the PLA sample average is 11,564.60. This means the carbon fiber had 3002% greater toughness than the control and the PLA had 48.47% greater toughness than the control. This has major impacts where light weight and custom parts are essential such as topology optimized aerospace parts, custom casts for broken bones, and personalized medical implants.

POSTER

Speaker

Kaden Buehrig

Lead Presenter | F - 6

Patient-Specific Cardiovascular Modeling to Evaluate LVAD Outflow Geometry and Stroke Risk

9:00 AM – 10:55 AM

UNDERGRADUATE

Patient-specific cardiac CT imaging has allowed for progressively increasing detailed geometric analyses of the aortic root and LVAD associated anatomy. Methods specifically used to geometrically translate given patient-specific scans particularly assess contrast inhomogeneity, define outflow graft alignment, and can reconstruct flow-governing structures in relevance to LVAD associated anatomy. Building off of these methods to establish geometric translation, we have developed an integrated fabrication process that converts volumetric CT datasets into anatomically accurate cardiovascular models that are used for benchtop experimentation. Geometric reconstruction and quantification from imaging is important when developing silicon castings because each model is used for recreating the patient-specific (PS) flow dynamics in a benchtop model to assess the patient-specific risk of thrombus (blood clot) formation and stroke.

ECG-gated CT scans are segmented to isolate the left ventricular outflow tract, aortic root, ascending aorta, and LVAD inflow/outflow cannula trajectories. This follows landmarking and measurement approaches used in prior clinical studies. Hounsfield-unit-based region identification, cusp-specific segmentation, and graft-angle reconstruction ensures preservation of clinically relevant geometry to be further used for studies. Segmented meshes were then idealized by enforcing curvature continuity, smoothing artifact-prone regions, and standardizing annular and anastomotic planes while retaining outflow graft orientation, which is a feature that is often implicated in stroke risk. These geometries are then downloaded as an STL file and further refined by adding branches as needed or fixing any other imperfections that may result in a blemished resin print using the ANYCUBIC 3-D resin printers.

The resulting physical models produce the essential anatomical features observed in CT-based LVAD benchtop experimentation which allow for a controlled assessment of hemodynamic conditions such as aortic root stasis, and flow disturbances.

POSTER

Speaker

Kristianna Quijote

Lead Presenter | F - 6

Irrigation-driven vegetation patterns and structure loss: A case study of the 2025 Los Angeles Fires

9:00 AM – 10:55 AM

UNDERGRADUATE

Southern California's hydroclimate of alternating droughts and intense rainfall events triggers cycles of rapid vegetation growth and desiccation. During drought periods, wildfire risk becomes extreme and is exacerbated by the accumulation of desiccated vegetation which acts as fuel. In urban areas, however, outdoor irrigation can alter expected vegetation patterns. The extent to which irrigated landscaping influences wildfire patterns is not well understood. This study investigates how vegetation type, health, density, and spacing may have contributed to structure losses during the 2025 Palisades and Eaton fires. We will leverage multiple satellite-based products to assess vegetation characteristics, including Normalized Difference Vegetation Index (NDVI) as a proxy for plant health and water use, the Normalized Burn Ratio (NBR) to map burn severity, and the Differenced Normalized Burn Ratio (dNBR) to detect changes between pre- and post-fire conditions. Sentinel-2 Harmonized NDVI and NBR time series, CalFire Damage Inspection data, LiDAR-derived canopy structure, and aerial imagery will be integrated to establish a five-year pre-fire baseline. Mean NDVI, NBR, and derived dNBR values will be quantified within zones around individual structures to assess pre-fire vegetation conditions, vegetation-structure proximity, and fire severity. Post-fire vegetation and structural damage will be analyzed across various neighborhoods. We anticipate that higher NDVI and wider vegetation-structure spacing are associated with less structural damage. Findings from this work will support the development of data-driven, water-efficient defensible-space guidelines that advance sustainable urban water use and enhance wildfire resilience.

POSTER

Speaker

Sabrina Guarin

Lead Presenter | F - 6

Transcranial Ultrasound Simulation: A Comparison Between k-Wave and mSOUND

9:00 AM – 10:55 AM

UNDERGRADUATE

Transcranial focused ultrasound is a non-invasive treatment that is employed for neurological conditions such as essential tremor. The skull, however, is highly heterogeneous and thus a wave-aberrating medium, leading to beam distortion and unfocusing. To account for wave aberrations, transcranial focused ultrasound simulations predict the wave aberrations induced by a specific skull based on its shape and acoustic properties. While numerous ultrasound modeling toolboxes exist, the challenge lies with delivering both high computational efficiency and accuracy required for simulating acoustic wave propagation. This study compares the accuracy and computational efficiency of two acoustic modeling tools, specifically the MATLAB third-party toolboxes k-Wave and mSOUND. This study begins to validate the element-wise approach and demonstrate the novel capability of mSOUND to extract phase correction information from the simulated pressure distributions of the skull. These findings support mSOUND as computationally efficient and its potential for future use in clinical settings where rapid phase correction is necessary for patient treatment.

POSTER

Speaker

Shalayah Webb

Lead Presenter | F - 6

F - 7: Behavioral and Social Sciences (G) 1

9:00 AM – 11:00 AM | Location: Montezuma Hall

GRADUATE

POSTER

Speakers

Kiria Fraga
PhD student | San Diego State University

Kitiara Cox
Lead Presenter | F - 7

Lorely Chavez
Lead Presenter | F - 7

Renz Mark Cabrera
Lead Presenter | F - 7

Robbi Melvin
Lead Presenter | F - 7

Tania Valdez
Lead Presenter | F - 7

Tori Walters
Lead Presenter | F - 7

William Farris
Lead Presenter | F - 7

Reliability and validity of the ISEL-12 scale among primarily Latino adults

9:00 AM – 10:55 AM

DOCTORAL

Background: Social support is an important mediator for health behaviors, yet few studies have assessed the reliability and validity of social support measures among Latino adults.

Objective: To evaluate the reliability and validity of the ISEL-12 scale in a sample of Latino adults.

Methods: This study used baseline survey data from a parent study among adult patients of a FQHC (n=169, 67% Latino). The Interpersonal Support Evaluation List-12 (ISEL-12) is a 12-item scale that measures social support, evaluated by a total sum score. Scale reliability and validity was assessed by multiple methods including Chronbach's alpha, Exploratory Factor Analysis (EFA), Parallel Analysis, and Velicer's MAP criteria (VSS). Concurrent validity was examined by comparing ISEL-12 scores by language and sex, and interaction by sex via t-test and linear regression, respectively.

Results: The overall scale showed strong internal consistency (α=0.85; ω=0.90), and in the H coefficient and the MIRT analyses, however three items contributed minimally to the scale. The EFA, parallel analysis, and VSS consistently showed that the ISEL-12 items represented one factor. Language preference (p=0.91) and sex (p=0.30) were not associated with social support, however there was significant sex by language interaction (p=0.04). Specifically, English-speaking females had a higher ISEL-12 score (26.23±7.33) compared to Spanish-speaking females (24.40±6.71), p=0.04.

Conclusion: The ISEL-12 demonstrates strong reliability and evidence for validity. However, the scale may be stronger by reducing it to 9 items. Future research should explore predictive and construct validity with the shortened version.

POSTER

Speaker

Kiria Fraga
PhD student | San Diego State University

Voices Heard, Lessons Learned: Evaluating the Impact of What I Wish My Parents Knew

9:00 AM – 10:55 AM

MASTER'S

The quality of parent-child communication and relationships is essential to the development of positive childhood health and social outcomes. This study evaluates the impact of What I Wish My Parents Knew (WIWMPK) on improving parent-child communication and relationships among program participants. This study examines how parents/caregivers and youth participants are engaging with the program's formats to increase achievement of the program's short-term outcomes. A multi-method approach was utilized, incorporating quantitative post-survey data from fifty-nine WIWMPK participants and qualitative data from ten semi-structured one-on-one interviews with WIWMPK planning committee members. The post-survey assessed the improvement of parent-child communication and relationships from the parents'/caregivers' and children's perspectives. Descriptive statistics were provided for each item for surveys among parents and their children. The semi-structured interviews assessed the perceptions of the program's formats in achieving the intended program outcomes. The interviews were analyzed through memoing, coding, data reduction, and theme development. In the quantitative surveys, parents and their children reported that participating in WIWMPK improved outcomes associated with parent-child communication and relationships. On a scale from 1-4 (4 representing greater improvement), on average, parents/caregivers reported improved parent-child communication related outcomes (mean= 3.6; standard deviation = 0.07) and relationship related outcomes (mean = 3.6; standard deviation = 0.02) Youth also reported improved parent-child communication related outcomes (mean = 3.0; standard deviation = 0.07) and relationship related outcomes (mean = 3.0; standard deviation = 0.2). The qualitative findings suggest that the program's formats, specifically towards involving youth voices and encouraging parent engagement, are successful in achieving the intended program outcomes. This study highlights the use of youth voices to improve the quality of parent-child communication and relationships.

POSTER

Speaker

Kitiara Cox

Lead Presenter | F - 7

Political Interventions and Health Behaviors of PWUD Experiencing Homelessness at the TJ-SD Border

9:00 AM – 10:55 AM

DOCTORAL

Background: The Tijuana-San Diego border serves as a place that provides passage to resources and experiences. It is not uncommon for people to also experience health and social consequences from forced displacement, which may include police or municipal encampment removal, especially for people who use drugs (PWUD) and are experiencing homelessness. Organizations and research teams have tried to increase drug checking and safe drug usage to reduce overdoses through a variety of programs and interventions

Objective: The purpose of this paper is to gain a better understanding of local, national, and global definitions of homelessness. In addition, this review of literature will aim to examine policy trends and interventions affecting PWUD who are experiencing homelessness along the Tijuana-San Diego border.

Methods: This review of literature will examine databases relating to homelessness population interventions from the Mexico and US border and highlight health outcomes among PWUD. This research will consider the drug overdose patterns, examining overdose statistics to identify more successful interventions that are also sustainable and effective. As part of the literature examination, Mexico-US housing policies will also be reviewed in terms of how each jurisdiction dictates its affordable housing solutions for PWUD who are experiencing housing insecurity.

Conclusion: Gaining a better understanding of political interventions proposed by Mexico and the US counterparts that are aimed at addressing behavioral patterns with PWUD will help inform future interventions. Informed decisions could lead to more effective and sustainable programming and potentially improve health outcomes in terms of drug overdose among PWUD and those experiencing housing insecurity.

POSTER

Speaker

Lorely Chavez

Lead Presenter | F - 7

Racial Harm for Student Affairs Professionals of Color

9:00 AM – 10:55 AM

MASTER'S

This study aims to understand how systems of oppression, such as racism, shape the everyday experiences of entry level student affairs professionals of color. Specifically, we seek to examine how racial harm manifests on the bodymindspirit of student affairs professionals of color navigating an anti-DEI climate. This study explores the role of joy and community as forms of resistance and racial healing. We use pláticas and convivencia/group pláticas as a method to collect data. Plática or convivencia constitutes a conversation or chat rooted in Latina/o/x culture aimed at understanding the experiences and knowledge of participants. It can be a space to learn from one another, build trust, exchange personal stories, and validate our humanity. Participants will engage in a 60-minute individual plática about racial harm and its manifestations. A follow-up 60-to-90 minute convivencia/group plática with body mapping will also take place as part of this study with the goals of mapping out how racial harm shows up in the bodymindspirit for student affairs professionals of color.

POSTER

Speaker

Renz Mark Cabrera

Lead Presenter | F - 7

How Social Recognition Shapes Research Interest and Career Commitment Among STEM Scholars

9:00 AM – 10:55 AM

MASTER'S

Previous research tells us that making a decision about what career to pursue is a socially influenced process. The information people receive about the culture and values that are perpetuated in a given field affects whether they see themselves fitting into that environment. For example, it has been established that the transmission of culture and values has a significant impact on decisions about whether STEM students pursue careers in science. This decision often hinges on students' social experiences within scientific contexts and whether they perceive a reflection of their own identity and values in these environments. Therefore, finding ways to encourage and validate students' scientific interests could help promote their continued participation in science and eventual commitment to long-term STEM careers. This encouragement—known as social recognition—conveys to students that others view them as scientists and that their scientific goals are worthy of pursuit. The current analysis examines whether social recognition indirectly predicts students' future career intentions by stimulating their interest in scientific research. We hypothesized that social recognition would be most influential for students from minority groups that are historically underrepresented and marginalized in STEM spaces. To this end, we analyzed longitudinal self-report survey data collected from 456 student researchers working in 117 faculty-led STEM research labs across 3 universities. Results from multilevel moderated mediation analyses using R revealed that social recognition is impactful for all students, but this effect is particularly pronounced for women, ethnic minorities, and first-generation college students. Broadly, these findings suggest that the effects of social feedback processes unfold differently across groups and can uniquely shape long-term career intentions.

POSTER

Speakers

R **Robbi Melvin**
Lead Presenter | F - 7

B **Brooke Isrow**
Lead Presenter | B - 1

Perceived COVID-19 Pandemic Impact and Mental Health in a Predominantly Hispanic/Latino Sample

9:00 AM – 10:55 AM

DOCTORAL

Introduction: COVID-19 disproportionately impacted underserved populations. Few studies have explored the perceived impact of the COVID-19 pandemic on mental health among Hispanics/Latinos. This study investigated associations between perceived COVID-19 pandemic impact and mental health symptoms (depression and anxiety) among Hispanic/Latino patients.

Methods: A secondary cross-sectional analysis was conducted using baseline data (N=161) from a randomized controlled trial (COVID-19 Prevention Program) that included patients who tested positive for SARS-CoV-2 at a Federally Qualified Health Center. Perceived impact of the COVID-19 pandemic was measured using a single-item scale. Participants indicated the extent to which they viewed the pandemic as having a positive or negative impact on their life. Depression was measured via the Center for Epidemiologic Studies Depression Scale, and anxiety was measured via the State Trait Anxiety Inventory Scale. Multiple linear regression models tested for the independent associations between perceived impact of the COVID-19 pandemic and mental health (depression and anxiety), adjusting for socio-demographic covariates.

Results: The sample was predominantly Hispanic/Latino (69.6%), female (69.6%), low-income (84% <$30K), with a mean age of 44 (SD=14). Over half (52.2%) met criteria for clinically significant depression and mean anxiety score was 9.4 (SD=6.5). In unadjusted models, perceived COVID-19 pandemic impact was negatively correlated with depression (r=-.37, p<.001) and anxiety (r= -.34, p<.001), explaining 13-14% variance. In adjusted models, perceived COVID-19 pandemic impact was a significant and independent predictor of depression (b = -1.64, 95% CI [-2.46, -0.81], p<.01) and anxiety (b = -1.60, 95% CI [-2.40, -0.81], p<.01).

Conclusions: Cognitive appraisal of COVID-19 played an important role in psychological distress. Interventions for vulnerable populations should integrate cognitive appraisal of stressful events and ensure accessible mental health services, especially during public health crises.

POSTER

Speaker

T **Tania Valdez**
Lead Presenter | F - 7

Discrimination and the mediating roles of perceived burdensomeness and thwarted belongingness

9:00 AM – 10:55 AM

MASTER'S

Purpose: Discrimination is a stressor that can occur to anyone based on their perceived or actual group membership. Research has consistently shown that there is an association between discrimination and adverse mental health outcomes, including depression and suicidal thinking. Although discrimination literature supports this association, most studies rely on cross-sectional designs, limiting understanding of the temporal relationship between discrimination and mental health. Discrimination literature has also fallen short in looking at thwarted belongingness and perceived burdensomeness as potential mediating predictors for mental health outcomes. The current study will examine the longitudinal associations between discrimination and depression severity and suicidal ideation. Additionally, the longitudinal associations between discrimination, suicidal ideation and depression severity with thwarted belongingness and perceived burdensomeness as a mediator will also be examined.

Design/Methodology/Approach: The proposed study will analyze data that was gathered through Prolific. The survey was distributed at three time points: baseline, 2 weeks and 2 months. The current study will use multilevel modeling (MLM) to analyze how discrimination affects suicidal ideation and depression severity over time. Models will also analyze how discrimination affects suicidal ideation over time with thwarted belongingness and perceived burdensomeness as mediators. SES and race/ethnicity will be included as covariates. All analyses will be conducted in R.

Implication: This research contributes to the literature by examining the temporal effects of discrimination and depression severity and suicidal ideation, and clarifies the mediating roles of thwarted belongingness and perceived burdensomeness. Overall, findings are expected to enhance understanding of how interpersonal constructs influence mental health outcomes.

POSTER

Speaker

Tori Walters
Lead Presenter | F - 7

Decreased Readiness to Reduce Substance Use Among Unstably Housed Individuals With Prior Treatment

9:00 AM – 10:55 AM

DOCTORAL

Unstably housed individuals experience high rates of substance use and major barriers to treatment. Understanding motivation for change is essential for improving engagement. Bupe by the Book (BBB), an R21-funded pilot study, tested a public library–based telehealth model to expand access to buprenorphine among people using opioids in San Diego. This cross-sectional sub-analysis examined whether prior substance use treatment history was associated with motivation to change at baseline.

Baseline surveys were collected from 159 unstably housed adults recruited through outreach near the San Diego Public Library. Participants completed surveys in private library rooms between July 2023 and December 2024. Prior treatment history was assessed with a dichotomous item asking whether participants had ever received professional help for alcohol or drug use. Motivation for change was measured using the Readiness Ruler, which assesses Importance, Confidence, and Readiness on a 1–10 scale. Consistent with motivational interviewing frameworks, scores of 10 indicated the highest motivation; 1–9 reflected lower levels. Logistic regression analyses examined associations between prior treatment and each motivational domain.

Participants with prior treatment were significantly less likely to report the highest level of readiness to stop or reduce substance use compared to those without prior treatment. Prior treatment was not associated with reporting the highest levels of Importance or Confidence. These results suggest that although individuals with treatment experience may value change and feel capable of making it, they may be less prepared to take immediate action. Reduced readiness may reflect treatment fatigue, discouragement from prior attempts, or a realistic appraisal of challenges involved in change.

Understanding how treatment history shapes readiness can inform tailored interventions for unstably housed individuals. Addressing readiness-specific barriers may improve engagement in treatment pathways such as buprenorphine initiation.

POSTER

Speaker

William Farris
Lead Presenter | F - 7

F - 8: Behavioral and Social Sciences (U) 3

9:00 AM – 11:00 AM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

Christopher Whitney
Lead Presenter | F - 8

Ella Born
Lead Presenter | F - 8

Gaby Krasny
Lead Presenter | F - 8

Giovanni Beltran
Lead Presenter | F - 8

Jaime Antoshak
Lead Presenter | F - 8

Malia Shaghasi
Lead Presenter | F - 8

Mia Scher
Lead Presenter | F - 8

Ricardo Rosas Jr.

1 in 10 College Students Screens Positive for High Autistic Traits

9:00 AM – 10:55 AM

UNDERGRADUATE

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterized by challenges in social communication, executive function, and sensory processing. While prevalence estimates in college populations range from 0.7–1.9% (White et. al., 2011), autistic traits may be more common and have been proposed as a distinct sixth factor to the Big Five personality model (Wakabayashi et al., 2006). This study utilizes the 10-item Autism-Spectrum Quotient (AQ-10) to estimate the prevalence of autistic traits. A score of 6 or above indicates high autistic traits and the need for ASD screening. This study also tests whether self-selection into an inattention-themed study (vs. a neutral personality study) was associated with higher trait scores.

Participants were 278 San Diego State University undergraduates (aged 18–40) recruited via the SONA system for course credit. Two groups were formed: Inattention (N=129) and Personality (N=149, neutral recruitment language). Usable data was Inattention n=98 and , Personality n=119). Measures included gender, AQ-10, and self-reported LD/ASD. Data were analyzed with descriptive statistics, and chi-square tests. No significant difference was found in scores ≥6 between groups ($\chi^2(1) = 0.45$, $p = .50$). Prevalence of elevated traits (≥6) was 10.6% (23/217). Strikingly, only 3 of the 23 high scorers (13%) reported known or suspected ASD, indicating potential underdiagnosis.

Elevated autistic traits in college students may reflect undiagnosed autism spectrum disorder and are themselves a risk factor for poor outcomes (Lundin et al. 2019). When autism remains unidentified, individuals are at risk of chronic masking, autistic burnout, repeated mental-health treatment failures, severe loneliness, and profound exhaustion with loss of daily functioning (Ali et al., 2025; Wurth et al., 2025). A late diagnosis in adulthood reliably brings relief, self-compassion, and improved quality of life (Stagg & Belcher, 2019; Superson et al., 2025). Limitations include the use of course credit for all participants, and reliance on self-report measures.

POSTER

Speakers

Christopher Whitney
Lead Presenter | F - 8

Evelin Valadez
Co-Presenter | F - 8

Relationship Between Social Anxiety and Changes in Heart Rate Variability During Social Stress

9:00 AM – 10:55 AM

UNDERGRADUATE

Heart rate variability (HRV), the fluctuation in time between heartbeats, is an emerging biomarker of psychological stress. Social anxiety disorder (SAD) is characterized by a persistent, severe fear of social situations. Previous studies have found that, during baseline recordings people with SAD have lower HRV compared to healthy controls. However, few studies have examined the relationship between trait social anxiety and changes in real-time HRV during social stress. In the current study, we examined the difference between HRV during rest and social stress in individuals with varying levels of social anxiety symptoms.

The current study comprised 28 undergraduate SDSU students. Participants completed the Liebowitz Social Anxiety Scale to assess their trait social anxiety symptoms. We measured HRV using a Polar H10 chest strap during a five minute baseline rest period and a socially stressful task that included a five minute speech and a five minute mental arithmetic task in front of researchers. We calculated HRV using the root mean squared of successive differences (RMSSD).

To quantify changes in HRV from baseline to stress, we calculated a difference score by subtracting the mean HRV during baseline from the mean HRV during stress. Results revealed a significant positive correlation between the HRV difference score and social anxiety symptoms, such that a smaller change in HRV from baseline to stress was associated with higher SAD symptoms ($r = 0.44$, $p = 0.01$).

Results suggest that people with higher levels of SAD symptoms have a blunted physiological response to acute social stress. One explanation for these results may be that people with higher SAD levels are in a constant state of physiological stress related to social situations. Finally, HRV may be a helpful, non-invasive tool to identify physiological dysregulation in individuals with social anxiety symptoms.

POSTER

Speaker

Ella Born
Lead Presenter | F - 8

Evolving Word Meanings: A Comparative Study of Word Learning in Children and Adults

9:00 AM – 10:55 AM

UNDERGRADUATE

While many may associate word learning with sitting in a classroom and rehearsing vocabulary lists, the majority of our lexical development occurs through environmental exposure. Despite this, most research on word learning focuses on explicit learning in young children (Borovsky et al., 2010, Borovsky et al., 2012).

The environments in which adults and children typically acquire new words are fundamentally different. It has been established that in both children and adults, word learning is an incremental process, and understanding of a novel word's semantic meaning increases with additional exposures (Dore et al., 2024). Infants and young children often learn by mapping words onto novel concepts, while adults more frequently learn new words with more nuanced meanings for concepts that they already understand (Borovsky et al., 2010). Generally, older children and adults associate a new word with a word that they had anticipated in the context of a sentence (Borovsky et al., 2012), and oftentimes begin to map new words onto a concept after only one exposure (Borovsky et al., 2010).

These contrasts prompt investigation into how children and adults shift their original word mapping when exposed to a novel word multiple times. In this study, participants were read sets of five sentences. In each set, a target word was replaced by the same nonsense word. The sets supported the identification of the nonsense word's meaning. After each sentence in the set, participants were given the opportunity to make an inference as to the nonsense word's meaning.

We predict that when compared to children, adults will more frequently and fluidly shift their identification of word meanings when given new contextual information, and that adults will be able to identify the target word with fewer exposures. An increased understanding of how word learning shifts with age could inform the instruction of vocabulary throughout all levels of education, and could potentially impact intervention techniques for children with disabilities that impact lexical development.

POSTER

Speakers

G **Gaby Krasny**
Lead Presenter | F - 8

S **Simone Caruthers**
Co-Presenter | F - 8

The Effects of Selective Incivility on Workplace Support

9:00 AM – 10:55 AM

UNDERGRADUATE

This study examined whether selective incivility predicts perceptions of allyship, diversity climate, and inclusion among LGBTQ+ employees. We collected data on Academic Prolific from 328 participants across two time points to assess their experiences of selective incivility and workplace support (allyship, diversity climate, and inclusion climate). We first examined our data by running descriptive analyses . Second, we ran regression analyses to evaluate the relationships between selective incivility and each support outcome. The results indicated that selective incivility significantly predicted lower perceptions of allyship ($b = -.216$, $p < .001$), lower perceptions of diversity climate ($b = -.195$, $p < .001$), and lower perceptions of inclusion climate ($p = .01$). These findings demonstrate that even subtle forms of mistreatment can meaningfully affect LGBTQ+ employees' perceptions of workplace support. The results highlight the need for continued research on subtle discrimination in organizational settings and strategies to promote more inclusive and supportive environments.

POSTER

Speaker

Giovanni Beltran
Lead Presenter | F - 8

To Se or Not to Se? An Eye-tracking Study on Inalienable Possession in Heritage Spanish Speakers

9:00 AM – 10:55 AM

UNDERGRADUATE

Not every child gets enough language exposure to fully acquire their native language. Prolonged reduction of language input can result in a grammar that appears different from that of monolingual speakers. A grammatical construction in Spanish that may be affected by reduced exposure to input in early childhood is possession of inalienable objects such as body parts, called inalienable possession. In Spanish, it is usually marked by the clitic se and a definite determiner (as in /El se rompió el brazo/ "He himself broke the arm" "He broke his arm"). However, English uses a possessive determiner (as in /He broke his arm/). In spontaneous speech heard in San Diego, heritage speakers (HSs) produced variants of this structure, sometimes using se but replacing the definite article with his (/Juan se rompio su brazo/ "John himself broke his arm"). As this research is only in the beginning stages of data collection, the background information, hypothesis, and two aims will be presented. HSs are the ideal population to study this construction given they experience a change in input from the heritage language (HL) to the societal language (SL) at or before the time they first enter school in the SL. Online processing tasks such as eye-tracking while reading have not yet been utilized to study inalienable possession. If HSs prefer the target structure, our hypothesis is that HSs will show greater fixation times on and regressions out of the possessive determiner+noun phrase than the definite determiner+noun phrase, indicating a higher level of processing difficulty for the structures that vary from the target. The first aim is to examine real-time early processing of inalienable construction variants, expanding on less fine-grained findings from speech and acceptability judgments. The second aim is to use the data to analyze individual differences. The variability of the HS profile alongside potential interactions with cross-linguistic interference are the primary motivations for analyzing individual differences.

POSTER

Speaker

J **Jaime Antoshak**
Lead Presenter | F - 8

Examining Associations Between Prenatal Alcohol Exposure and Sex with Youth Aggression

9:00 AM – 10:55 AM

UNDERGRADUATE

Prenatal alcohol exposure (PAE) occurs when a fetus in utero is exposed to alcohol and can lead to adverse developmental effects. PAE has been associated with increased behavioral difficulties, including aggression. Many studies have also documented sex differences in aggression, with males exhibiting more aggression than females, yet fewer studies have examined whether sex and PAE jointly influence aggression. Therefore, the goal of this study was to evaluate whether ratings of aggression differ by sex, PAE status, or the interaction between the two. We hypothesized that males would have elevated levels of aggression compared to females (H1), children with PAE would have more aggression than those without (H2), and males with PAE would show the most aggression of all groups (H3). Children (N=774) aged 5-17 (Mage=10.77 years, SD=3.47) were classified by sex (54.1% male) and PAE status (n=388 PAE, n=386 non-PAE). The Child Behavior Checklist was completed by the child's guardian and used to quantify aggression. The CBCL provides T-score corrected for age and sex that range from 50-100 (Typical<67, Borderline 67-70, Elevated>70). A between-subjects 2x2 ANOVA was used to investigate the main effects of sex and PAE, as well as the interaction between the two. Children with PAE showed significantly elevated aggression scores compared to children without PAE ($F[1,770]=47.34$, $p<0.001$, $\eta2=0.058$). Although males showed slightly higher aggression than females (M=63.04 vs. M=61.83), the main effect of sex ($F[1,770]=1.89$, $p=0.170$, $\eta2=0.002$) and the interaction ($F[1,770]=0.04$, $p=0.852$, $\eta2=0.000$) were not significant. These findings support an increase in aggression related to PAE but do not support differential effects related to sex. This study was conducted in school-age children; future research should further focus on early developmental and environmental factors that could shape aggression in children.

Research supported by NIAAA Grant U01 AA014834

POSTER

Speaker

Malia Shaghasi

Lead Presenter | F - 8

Effects of Prenatal Alcohol Exposure and Child Protective Services Involvement on Social Behavior

9:00 AM – 10:55 AM

UNDERGRADUATE

Prenatal alcohol exposure (PAE) can increase social behavior problems. Early life adversity (ELA), which can lead to involvement with child protective services (CPS), can increase social behavior difficulties. Previous research has shown that PAE and CPS involvement often co-occur. Despite this pattern, there is little research that has examined potential interactive effects on social behavior. Therefore, the purpose of this study was to examine both main and interactive effects of PAE and CPS involvement on social behavior. We hypothesized that participants with either PAE or CPS involvement would have more social problems than youth without, and participants with both PAE and CPS involvement would have the most overall. Data from waves 2-4 of the Collaborative Initiative on Fetal Alcohol Spectrum Disorders were used, where caregivers reported on PAE and CPS involvement and completed the Social Problems scale of the Child Behavior Checklist. A matched-pair design conditioned on age (Mageages=10.76, SD=2.96, Range=6-16), sex (51% female), and race (72% non-White) was used. The four groups included subjects with PAE and CPS involvement (n=25), with PAE and without CPS involvement (n=25), without PAE and with CPS involvement (n=25), and without PAE and CPS involvement (n=25). There were two independent variables (PAE and CPS) with two levels each (yes/no); therefore, a between-subjects 2x2 ANOVA was performed to assess the main effects and interaction effect of PAE and CPS involvement on Social Problems. Subjects with PAE scored significantly higher on social problems than those without ($F[1,96]=4.088$, $p=0.046$, $\eta2=0.041$). Subjects with CPS-involvement scored significantly higher on social problems than those without involvement ($F[1,96]=7.808$, $p=0.006$, $\eta2=0.075$). Unexpectedly, the interaction was not significant ($F[1,96]=0.042$, $p=0.838$, $\eta2=0.000$). Findings suggest that both PAE and ELA leading to CPS involvement can increase social behavior problems, but their combination does not lead to exacerbated problems with social behavior.

Supported by NIAAA Grant U01 AA01

POSTER

Speaker

Mia Scher

Lead Presenter | F - 8

From Service to Scholarship: Latino Veterans' Postsecondary Educational Pathways

9:00 AM – 10:55 AM

UNDERGRADUATE

Latino veterans are a rapidly growing segment of the U.S. veteran population (1.5 million as of 2023), yet they remain underrepresented in graduate education (Mora, 2023; Prestianni, 2024). Only 26.1% of Latino men with bachelor's degrees enroll in graduate school, compared to 33.2% of Latina women, signaling a critical equity gap (Kim et al., 2024). This study examines how the GI Bill influences Latino veterans' decision-making about post-baccalaureate education (Hamilton, 2020). Centering their narratives, it illuminates systemic, cultural, and institutional barriers, as well as the forms of resistance and community cultural wealth they mobilize to navigate higher education.

Grounded in LatCrit Theory, Community Cultural Wealth, and Veteran Critical Theory (Solórzano & Yosso, 2001; Yosso, 2005; Phillips & Lincoln, 2017), this project explores how Latino veterans resist deficit narratives and institutional gatekeeping through lived experience, cultural knowledge, and collective resilience. Purposeful and snowball sampling will recruit participants who meet study criteria and support community-based outreach.

Using a qualitative design, the study centers Latino male veterans' voices. A demographic questionnaire will capture background information, followed by 60–90 minute, audio-recorded one-on-one Zoom interviews in which participants select pseudonyms. Veterans will discuss their experiences navigating the GI Bill, higher education pathways, and transitions into graduate school.

These stories are treated not only as data, but as acts of resistance and reclamation that unsettle dominant narratives about who belongs in graduate education and how veterans of color are perceived. Many Latino veterans are first-generation college students whose aspirations are rooted in familial sacrifice, cultural pride, and community responsibility (Bauman, 2013; Park, 2011). Their narratives connect individual choices to broader histories of migration, military service, and educational exclusion.

POSTER

Speaker

Ricardo Rosas Jr.

F - 9: Behavioral and Social Sciences (G) 2

9:00 AM – 11:00 AM | Location: Montezuma Hall

GRADUATE

POSTER

Speakers

Carl Pasco
Lead Presenter | F - 9

Francesca Rodriguez
Lead Presenter | F - 9

Jillian O'Keeffe
Lead Presenter | F - 9

Melisa Gonzalez
Lead Presenter | F - 9

Nhan Le
Lead Presenter | F - 9

Sarah Romo
Lead Presenter | F - 9

Sunny Mangiameli
Lead Presenter | F - 9

Volha Vysotskaya
Lead Presenter | F - 9

Burnout among Filipino Nurses and White Nurses During Covid-19

9:00 AM – 10:55 AM

MASTER'S

Registered nurses are a central part of the healthcare system, providing vital care to US citizens. The COVID-19 pandemic exacerbated the existing nursing shortage

Research shows that Filipino nurses experienced higher levels of burnout, and even persevering through burnout during times like COVID, due to their collectivistic and familial obligations that their white counterparts don't experience

This disparity is rooted in the long-standing transnational relationship between the Philippines and the US that has historically produced the steady pipeline of Filipino nurses for US hospitals. It is further shaped by the push-pull factors and contributes to the ongoing "brain drain" by sending countries such as the Philippines. We hypothesize that Filipino nurses trained in the Philippines are more likely to have felt an increase in burnout during COVID as compared to U.S.-trained White nurses. Using the National Sample Survey of Registered Nurses (NSSRN) 2022 dataset, we analyzed the relationships of sociological variables as they relate to the burnout rate of Filipino and White nurses. Many of the significant variables relate to the idea of gendered normative collective family care. Furthermore, variables such as higher education are a sign of these women coming from brain drain in the Philippines, and are also supported by pull factors such as Filipina nurses having, on average, a higher salary. Familial obligations pressure Filipino nurses to continue working as nurses to provide for their families.

POSTER

Speakers

C **Carl Pasco**
Lead Presenter | F - 9

J **Jasmine Canonizado**
Co-Presenter | F - 9

Predictors of Treatment Adherence in a Transdiagnostic Intervention for Youth Anxiety and Depression

9:00 AM – 10:55 AM

MASTER'S

Treatment adherence is key to implementing manualized evidence-based treatments; however, links between adherence and clinical outcomes are inconsistent, and little is known about factors that affect adherence. This study examined predictors of therapist adherence to Brief Behavioral Therapy (BBT), a transdiagnostic intervention for youth anxiety and depression. Participants included 95 youths (ages 8–16) and their parents who received 8–12 BBT sessions. Sessions 6–11 focused on exposure and behavioral activation. Adherence was measured using observer ratings of two randomly selected audiotapes from sessions 6–11 (n=170). Observers rated (a) coverage of manualized content and (b) delivery quality (unsatisfactory, satisfactory, exceptional). For each participant, an average score was calculated for both adherence indicators. Sociodemographic and clinical predictors were assessed at baseline. Bivariate correlations and multiple regression tested relations between predictors and adherence. On average, therapists covered 81.3% (SD=.13) of content, and 80.2% (SD=.14) was rated satisfactory or exceptional. Because these variables were highly correlated (r=.98), only delivery quality was tested in prediction models. Lower adherence was associated with older youth age (r=−.29, p=.01), greater anxiety severity (r=−.33, p=.01), conduct problems (r=−.26, p=.02), higher family conflict (youth report [r=−.33, p=.01]; parent report [r=−.35, p=.00], and parental depression (r=−.24, p=.03). In regression a model, youth age (B=−.01, p=.02), anxiety severity (B=−.01, p=.03), and family conflict (B=−.01, p=.04) remained significant. Findings suggest that greater clinical severity and psychosocial stress may impact therapist adherence during active BBT. There is some evidence linking BBT adherence with improved symptom outcomes for youth. Thus, additional research is needed to identify the optimal balance between protocol adherence and flexibility to accommodate patient needs.

POSTER

Speakers

F **Francesca Rodriguez**
Lead Presenter | F - 9

F **Fernanda Ronzon**
Lead Presenter | A - 11

All Are Welcome: A Study of Christian Churches and Their Evolving Stance on the LGBTQ Community

9:00 AM – 10:55 AM

MASTER'S

More recently, Christian churches have begun including LGBTQ people into their worship practices and leadership. These LGBTQ inclusive institutions differ greatly in beliefs from their more conservative counterparts within the same religious traditions. Current organizational change research is limited in its focus on religious institutions leaving the move towards more progressive religious beliefs under studied. The present study consists of qualitative interviews conducted with church leaders of LGBTQ inclusive churches in a major US city. From this work, researchers will develop a more robust understanding of progressive social movements within churches and how organizational change occurs in these religious institutions. Results will have implications for sociological fields of social change but also will advance religious studies with an enriched perspective of liberal religion.

POSTER

Speaker

J **Jillian O'Keeffe**
Lead Presenter | F - 9

Parents' Explanations for Upward or Downward Social Mobility

9:00 AM – 10:55 AM

MASTER'S

Social mobility is defined as the degree to which a person's socioeconomic status improves or declines relative to their parents or throughout their lifetime. Understanding beliefs about upward or downward social mobility offers insight into how people interpret social inequality. Understanding parents' mobility beliefs is important because believing upward mobility is attainable has been linked to increased parental investments in children's development and mental and behavioral health outcomes in youth.

This study examines parents' reasoning for their family's expected social mobility. Our sample includes 122 parents recruited from San Diego public libraries. Participants completed a survey in English (90.16%) or Spanish (9.84%)(age range = 24–65, M = 40.21); 39.8% identified as male, 56.9% female, 0.81% nonbinary, and 2.4% as other. Annual income ranged from less than $10K to $250K, with a median of $10–150K. Participants identified as Asian (9.2%), Black (15%), Hispanic (44.2%), Multiracial (9.15%), White (15.83%), Other (5.8%), and 3 did not report their ethnicity. Parents completed a subjective social status ladder and rated childhood, current, and expected future status (low = 1, high = 10). They then explained their reasoning for their expected future status via an open-ended question. We used Reflexive Thematic Analysis to qualitatively analyse responses from this open-ended question with consensus-coding to ensure inter-rater reliability. We identified 32 codes and 11 themes. 75.2% of parents anticipated upward mobility themes related to higher education opportunities, job/career advancement, family dynamics (eg, dual income), and optimism about the future were related to this expectation. Only 3.31% expected downward mobility; pessimism, economy, and stagnant growth were related to this expectation. 19.01% reported expecting to remain at their current status, and 2.48% did not answer the future status question. Future analyses will link qualitative codes with survey data to explore demographic patterns in parents' mobility beliefs.

POSTER

Speaker

M **Melisa Gonzalez**

Lead Presenter | F - 9

Exploring Mobile Clinic and Street-Medicine Outreach Strategies using Agent-Based Modeling

9:00 AM – 10:55 AM

MASTER'S

People experiencing homelessness (PEH) represent a growing and vulnerable population in San Diego, with complex health and social needs that are difficult to address through traditional interventions. Mobile clinics and street medicine have the potential to expand access to care for this population, yet their effectiveness depends on dynamic interactions of mobility, trust, and engagement. To explore these dynamics, we develop an agent-based model (ABM) that simulates interactions among PEH, mobile clinics, and street-medicine providers across San Diego County. The model incorporates key behavioral and structural factors, including mobility, resource allocation, trust, satisfaction, and social learning, to examine how trust-based communication and information sharing among PEH influence engagement with healthcare services. By integrating geographic data and socially informed behavioral rules, this model offers a framework for evaluating how different outreach strategies may impact service utilization and health access among PEH.

POSTER

Speakers

N **Nhan Le**

Lead Presenter | F - 9

H **Hetty Zhang**

Mexican Fertility Trends by Urbanization and Religion

9:00 AM – 10:55 AM

MASTER'S

There is inconsistent evidence whether urbanization and industrialization lower fertility as suggested by classic demographic transition theory. Furthermore, specific cultural aspects of regions have often been linked to fertility changes. As such, this study analyzes the impact of urbanization and religious affiliation on the fertility of women in Mexico. We utilize IPUMS International over a twenty year period, drawing data from 2000, 2010, and 2020 (N=10,696,274), to investigate the relationship between urbanization and fertility, as well as religion and fertility, given Mexico's religious culture. Specifically, we calculate the mean fertility across different Mexican states in 2000 and 2020 to examine their changes, how urbanization and religious affiliation interact with each year while controlling for demographic variables, and use Ordinary Least Squares (OLS) regression in order to examine the relationship between these independent variables on children ever born. Our results show that fertility is decreasing across all localities with the largest changes over time occurring in the smallest localities. Moreover, we find that fertility is similar across all religious affiliations, with the largest differences being across "other Christians" and "other non-Christians." Much of the variation in fertility can be attributed to demographic factors, such as relationship status and educational attainment, yet fertility is declining across most populations. Notably, our findings showcase that most women that choose to have children have more than one, however, Mexico's fertility fails to meet the replacement rate of two due to a large number of women having zero children. These findings suggest that recent fertility decline in Mexico is increasingly shaped by broader structural and demographic processes rather than religious affiliation or urbanization alone. Overall, our findings illustrate the importance of understanding the cultural and structural issues surrounding fertility.

POSTER

Speakers

S **Sarah Romo**

Lead Presenter | F - 9

C **Citlalli Martinez-Cano**

Co-Presenter | F - 9

Front Desk Knowledge and Attitudes Toward Transgender and Nonbinary OB-GYN & Women's Health Patients

9:00 AM – 10:55 AM

MASTER'S

First impressions matter, and front desk staff shape the baseline climate for clinical encounters. For transgender and nonbinary (TGNB) people, who already have a great mistrust in the healthcare system due to marginalization and discrimination, these initial encounters significantly shape patient experience. Negative interactions at check-in have been linked to healthcare avoidance and reduced trust in clinical encounters. Notably, recent research shows that TGNB patients rate interactions with front desk staff as the least affirming aspects of care. Efforts to advance the practice of TGNB-affirming care must therefore include a focus on these key gatekeepers, and not just on education and quality improvement for clinicians.

TGNB individuals underutilize preventive and reproductive health services, including cervical, breast, and prostate cancer screenings. Transgender men, for example, are less likely to be up to date on cervical cancer screening and more likely to receive inadequate or abnormal results. This underutilization contributes to disparities in reproductive health outcomes and may delay the diagnosis of reproductive cancers among TGNB individuals. In OB-GYN and women's health clinics, the role of front desk staff in creating a safe environment for TGNB patients is consequently more than just a customer service issue–it may be a matter of life and death.

This study addresses four questions: (1) What is the current level of staff knowledge regarding TGNB health needs and inclusive practices? (2) What are staff attitudes toward TGNB patients? (3) What training, if any, have staff received on gender diversity and TGNB-inclusive communication? (4) What barriers or concerns do staff report when assisting TGNB patients?

Findings may inform targeted staff training, systems improvement efforts, and policy development to foster more affirming reproductive healthcare environments. This study provides one of the few examinations of non-clinical staff readiness to support TGNB patients, offering actionable insights to advance health equity.

POSTER

Speaker

Sunny Mangiameli
Lead Presenter | F - 9

STaR (Syntactic Trajectories across Represented Speakers)

9:00 AM – 10:55 AM

MASTER'S

Deaf or hard of hearing children (DHH) learning spoken language often show persistent vulnerabilities in movement-derived syntactic structures, despite age-appropriate global language test scores. DHH children produce similar numbers of words per sentence as children with typical hearing (TH), but have lower syntax scores due to additions, omissions, substitutions, and word-order errors.

Research indicates even TH children struggle with object relatives, often using alternative derivations to mitigate intervention effects, suggesting multiple developmental syntactic pathways. Recent studies show DHH children avoid movement, relying on resumptive pronouns and head-doubling, and face difficulties with object relatives and OVS topicalization, even with intact SVO sentences and subject relatives.

This study asks whether DHH and TH children with comparable language assessment performance differ in frequency of producing movement-derived structures when available, accuracy in those structures, and error profiles, emphasizing relative clauses (RCs) and topicalization.

We focus on three groups of 6-7-year-old English speakers: one TH group and two DHH groups learning spoken language - one with hearing aids (DHH-HA) and one with cochlear implants (DHH-CI). Using standardized assessments, we coded child-generated sentences for RC presence and type: object relatives (OR) marked as gap OR, resumptive pronoun relative, or ungrammatical OR. Errors were categorized by type.

Topicalization is coded similarly, for type, movement, and errors.Each movement opportunity was classified by error profile: primarily movement-related, non-movement, or mixed. We derived per-child and per-group metrics: proportion of movement-realized items (RCs, topicalization), accuracy in movement structures, and error distributions.

We expect DHH and TD children to achieve similar scores via different syntactic paths: TH children using RCs and topicalization more frequently and accurately, while DHH children employ them more rarely and with a higher rate of movement-specific errors.

POSTER

Speakers

Volha Vysotskaya
Lead Presenter | F - 9

Melanie Cott
Co-Presenter | F - 9

F - 10: Behavioral and Social Sciences (G) 3

9:00 AM – 11:00 AM | Location: Montezuma Hall

GRADUATE

POSTER

Speakers

Autumn Day
Lead Presenter | F - 10

Hetty Zhang

Katherine Torfeh
Lead Presenter | F - 10

Meagan Ann Herrera
Lead Presenter | F - 10

Nick Martin
Lead Presenter | F - 10

Sandra Massoud
San Diego State University

Shiqi Chen
Lead Presenter | F - 10

Vandana Padmaprakash
Lead Presenter | F - 10

Amplitude and Onset Latency of the P3 Waveform During a Visual Oddball Task

9:00 AM – 10:55 AM

MASTER'S

Research has consistently shown that people with schizophrenia have slower reaction times (RTs) compared to healthy individuals across a range of tasks, indicating a generalized deficit in processing speed. This pervasive RT slowing has been further explored using event-related potentials (ERPs) to more precisely index the specific deficits in distinct cognitive and motor processes exhibited by people with schizophrenia. Specifically, research using the P3 waveform, an event-related potential (ERP) linked to high-level cognitive processing, such as context updating, has found an overall reduction in the amplitude of the P3 in people with schizophrenia, irrespective of the probability of the task-defined stimulus category. Some studies have also demonstrated no delay in the onset latency of the P3 waveform in people with schizophrenia, reflecting no delay in completing perceptual and categorization processes. However, these results have been somewhat inconsistent across stimuli modalities, ERP analysis methods, and symptom severities of schizophrenia. Moreover, limited research has been done to determine whether these results are consistent in individuals during the prodromal stage preceding the onset of illness, including in people identified as at clinical high-risk (CHR) for developing psychosis. To address this gap, the present study recorded EEG and behavioral responses while 34 individuals with CHR for psychosis and 39 age[EK1.1]-matched controls completed an oddball task using visual stimuli. On each trial, a letter (A, B, C, D, or E) was presented in the center of the screen, and participants responded whether the letter was the target (20% probable) or non-target (80% probable) for that block of trials. Results comparing RTs, the P3 parent waveforms, and the P3 target-minus-non-target difference waveforms between CHR and control participants will be presented. This study will provide important information on potential biomarkers in individuals who are clinically at high-risk for developing psychosis.

POSTER

Speaker

Autumn Day
Lead Presenter | F - 10

Assessing Changes in Hepatitis Knowledge Following Outreach Education Sessions with APHF

9:00 AM – 10:55 AM

MASTER'S

Hepatitis B and C remain widespread viral liver diseases as racial/ethnic disparities persist, so increasing public knowledge is essential for prevention, early diagnosis, and treatment. According to the CDC (2023), Asians and Pacific Islanders reported higher incidence and mortality rates than non-Hispanic Whites for chronic hepatitis B and C-related cases. Other sources reported Hispanics faced higher hepatitis-related mortality compared to Whites. The American Pacific Health Foundation (APHF), a San Diego non-profit, offers free hepatitis screenings, linkage to care, and health education at community outreaches in underserved communities. This descriptive study evaluated anonymous survey data from APHF outreaches conducted 2017 to 2025. It examined changes in hepatitis knowledge measured by a 10-item pre/post-test survey and differences by sociodemographic characteristics or across repeat visits. A paired t-test assessed knowledge change among participants who completed both assessments, and a two-sample t-test examined retention among individuals who attended more than once. Additional analyses explored differences in improvement of knowledge by race and income. The total sample size (N=522) consisted of participants with a mean age of 53 years old, 63% female, 31% uninsured, 76% with income below $40,000, and most were either Asian (47%) or Hispanic (39%). Among 492 pre-tests, the mean score was 5.6/10 (SD=2.6), and among 377 post-tests, the mean was 7.9/10 (SD=2.4). In 347 matched pre/post pairs, participants showed significant improvement (mean difference=2.4, 95% CI: 2.1–2.6; p<0.0001). Among 14 individuals who attended at least two outreaches, there was no significant difference in scores between visits (mean difference=0.02; p=0.97). There was a clear trend of improvement between pre- and post-scores, regardless of race or income. These findings demonstrate that APHF's educational component at community outreaches were effective in immediate improvement in hepatitis knowledge, though additional strategies may be needed to support long-term retention.

POSTER

Speaker

Hetty Zhang

Indirect Effect of a Cognitive Behavioral Prevention Program on Anxiety Through Change in Depression

9:00 AM – 10:55 AM

MASTER'S

Depression and anxiety are prevalent, comorbid, and often emerge in youth. While transdiagnostic models have become increasingly popular, programs designed to target either depression or anxiety may have cross-over or downstream effects on the other. The current study examines whether a cognitive behavioral (CB) prevention program for depression impacted anxiety in at-risk youth. While the program had positive effects on youth depression, less is known about its potential to reduce anxiety. Data were drawn from a randomized trial which included 316 youth participants (aged 13-17) and their parents. Youths had past history of depression, current subdiagnostic depressive symptoms, or both; parents had a prior or current diagnosis of depression. Youth received either the CB prevention program, consisting of eight weekly group sessions, followed by six monthly booster sessions, or usual care (UC). Youth anxiety and depression were measured at baseline, two-, and eight-months post-treatment using the Center for Epidemiological Studies Depression Scale (CES-D) and the Self-Report for Childhood Anxiety Related Disorders (SCARED). Model 4 of PROCESS was used to test the effects of the CB prevention program on anxiety, as mediated by youth depression symptoms. Results indicated that the CB prevention program had a significant effect on youth depression at month 2 (β = -2.614, p = .024), which, in turn, impacted youth anxiety at month 8 (β = .507, p < .001). While the CB prevention program did not directly impact youth anxiety symptoms, there was an overall significant indirect effect of the CB prevention program on youth anxiety at month 8 through youth depression symptoms at month 2 (95%CI [-2.532 – -.192]). We will further examine effects at month 20 and 32 to assess the impact on long-term follow-up. These results clarify the potential of preventive treatments not designed as transdiagnostic to yield downstream effects on comorbid psychopathology. It is worth considering whether this effect is unique to the CB prevention program model or prevention programs in general.

POSTER

Speaker

K

Katherine Torfeh

Lead Presenter | F - 10

Functional connectivity of the visual word form area in autism

9:00 AM – 10:55 AM

MASTER'S

Background: The Visual Word Form Area (VWFA) is a brain region associated with processing complex visual information such as words and letter strings. Autism spectrum disorder (ASD) is a neurodevelopmental disorder that has been associated with atypical visual processing and hyperlexia. The development of the VWFA in autistic individuals, however, has not been investigated. Therefore, the current study examined functional connectivity (FC) of the VWFA in ASD using functional magnetic resonance imaging (fMRI).

Methods: Participants included 28 adolescents with ASD (mean age=15.7 years, SD=2.6; 7 female) and 19 neurotypical (NT) adolescents (mean age=14.8, SD=1.6; 7 female) matched on age, sex, IQ, and head motion with at least a twelve-year-old reading ability. Participants completed a lexicosemantic decision-making task by responding differentially on a button box with the left hand to standard non-animal words, animal words, and pseudowords (inhibiting response). Two 7-minute task runs were acquired using a multiecho-multislice fMRI sequence on a 3T scanner. Average fMRI time series were extracted from regions previously shown to be involved in reading, and FC with the VWFA was assessed using Pearson Correlation. A general linear model compared averaged FC across runs between the ASD and NT groups.

Results:

During the task, FC of the VWFA and left inferior temporal gyrus ($F(1,47)=4.2$, $p<.05$) and FC between VWFA and left inferior frontal gyrus ($F(1,47)=6.4$, $p<.05$) were significantly higher in ASD compared to NT adolescents. There were no correlations between age and FC in either group.

Conclusions: These findings provide initial evidence of altered functional organization of the brain network involved in reading in individuals with ASD. Future analyses will test how differences in FC relate to language skills and task performance.

POSTER

Speaker

M

Meagan Ann Herrera

Lead Presenter | F - 10

The Homebase Homerun

9:00 AM – 10:55 AM

MASTER'S

The Homebase Homerun is designed by 4 bases geared towards student success: Outreach, Course Based Intervention, Advising and Peer Mentors.

Outreach consists of contacting the pool of students who are known to be institutionally avoidant, refusing to be registered for any of the community centers Dr. Pope and student workers will invite them to the Homebase Lab as well as enroll them in GenS courses to aid their academic journey.

The Course Based Intervention encompasses Gen S courses geared towards scholarly development to aid students in deciding a major as well as build their own sense of agency within a structured community of young people facing similar challenges.

The advising is led by Dr. Pope and other Homebase Lab counselors to meet the needs of the students as well as assist them in getting direct access to resources on campus.

The Peer Mentors assigned to students enhance the college experience and help with adjusting to campus life.

All 4 bases are essential to the process of incoming students, whether freshman or transfers, to become well-rounded individuals and graduate from SDSU in a timely manner.

The 4 bases all come together in the Homebase Lab located on the second floor of the administration building where students can debrief with their peers, study, eat and relax. Safe environments on campus geared towards fostering genuine connections bolsters the college experience and fortifies the strength that SDSU has for being a strong campus and a strong community.

POSTER

Speaker

Nick Martin

Lead Presenter | F - 10

Legal Access for Transition Aged Youth Experiencing Homelessness

9:00 AM – 10:55 AM

MASTER'S

Background: Around one in ten Transition Aged Youth (TAY), 16-25 year olds, experience homelessness each year, with a wide range of legal issues impacting their ability to achieve self-stability related to income, housing, justice involvement, and access to public benefits (e.g., healthcare). Wraparound services are the most common approach to support unhoused youth in obtaining housing and stable income via individualized and strength-based case management. Despite its importance, most social service agencies do not include legal services in their wraparound programs and social workers are untrained in recognizing legal barriers. Thus, clients are not effectively referred to legal services. This has left challenges for social service staff to meet the needs of unhoused TAY when legal barriers impact their ability to achieve self-stability (e.g., obtaining housing and employment).

Method: An Integrative literature review was conducted to explore the legal barriers unhoused TAY experience. Twenty-five articles were analyzed across platforms such as Google Scholar, SDSU One, ProQuest, and Hein Online through keyword searches.

Results: Findings of this review indicate that integrating legal representation into wraparound services for TAY experiencing homelessness yields favorable outcomes for youth to publicly access basic benefits such as health insurance and income support. It also reduces abuse, neglect, and violence that unhoused TAY experience by supporting youth in obtaining independent or alternative stability options.

Conclusion: Wraparound programs with integrated legal services would support youth in obtaining and maintaining income and permanent housing by addressing specialized legal needs that homeless TAY have. Without the coordination of services, unhosued TAY will continue to face barriers to long-term stability.

POSTER

Speaker

Sandra Massoud

San Diego State University

Short- and Long-Term Associations Between Sleep Problems and Anxiety in Depressed Adolescents

9:00 AM – 10:55 AM

MASTER'S

Sleep disturbance is strongly associated with internalizing symptoms such as anxiety and depression, as well as externalizing symptoms in youth. Adolescents at elevated risk for depression frequently show co-occurring anxiety and behavioral dysregulation; these difficulties may interact with sleep disturbance to increase vulnerability for later depressive disorders. Most longitudinal research in this area, however, has relied on only two time points with widely varying time-lags. This limits the ability to identify short- or long-term changes in sleep disturbance and to capture how sleep co-varies with internalizing or externalizing symptoms over time. To address these gaps, 245 adolescents (ages 13–17) at risk for depression from a randomized controlled prevention trial were assessed at baseline, post-intervention (Month 3), and at Months 9, 21, and 33. Participants were randomly assigned to usual care or Cognitive Behavioral Prevention Program (CBP). Two-spline multilevel models were used to examine sleep disturbance trajectories, and the within-person associations between anxiety and sleep accounting for depression and disruptive behaviors. Results indicated that adolescents assigned to CBP showed a significantly greater reduction in sleep disturbance during the intervention period (0-2 months) as compared to teens in usual care (b = -0.24, p = .01). The reductions in sleep disturbance flattened out during the follow-ups (b = -0.02, p = .01), and did not significantly differ in the long-term trajectory(b = 0.01, p = .41). Within-person analyses showed that higher sleep disturbance over time was significantly associated with higher anxiety symptoms (b = 0.40, p < .001). This association remained significant after adjusting for depressive or disruptive behavior symptoms. None of the demographic variables moderated the association between within-person anxiety and sleep, suggesting that the anxiety-sleep association was consistent across demographic characteristics. Findings highlight the importance of monitoring sleep disturbance and emotional distress over time.

POSTER

Speaker

Shiqi Chen
Lead Presenter | F - 10

School Mental Health Climate and Adolescent Depressive Symptoms, Suicidal Ideation, and Service Use

9:00 AM – 10:55 AM

MASTER'S

School-level support for adolescent mental health has increased but stigma and unsupportive norms may limit help-seeking. This study examines how adolescent depressive symptoms, suicidal ideation, stress-related somatic symptoms and mental health service use relate to school mental health climate, defined as students' perceptions of how their school supports and responds to mental health concerns. Guided by social norms theory, it was expected that more supportive climates would relate to fewer symptoms and greater service.

Study data come from the 2023-2024 California Healthy Kids Survey, a population-based survey of students in Grades 9 through 12. The analytic sample includes 76,953 adolescents from 296 schools. The sample reflects the broader demographic diversity of the state (44% Latinx/Hispanic, 20% White, 20% Asian, 3% Black or African American, 9% Multiracial; 49% male, 48% female, 3% nonbinary or other; 43% of parents or guardians had less than a four-year college degree; and 7% were designated as English Learners).

School mental health climate was measured using five items assessing openness, access to support, encouragement of well-being and perceived peer and adult responsiveness. Multilevel regression models examined associations between climate and outcomes, controlling for individual and school-level covariates. Preliminary findings show that a more supportive climate was associated with less somatic symptoms (b = -0.21, 95% CI [-0.23, -0.20], p < .001) and higher likelihood of mental health service use among students reporting need (b = 0.18, 95% CI [0.17, 0.19], p < .001). However, a more positive climate was also associated with increased likelihood of depression (b = 0.10, 95% CI [0.12, 0.13], p < .001) and suicidal ideation symptoms (b = 0.07, 95% CI [0.07, 0.08], p < .001), potentially because more supportive environments led to reduced disclosure bias. Findings will advance understanding of how school culture shapes adolescent well-being and inform stigma-reduction, prevention and policy efforts.

POSTER

Speaker

Vandana Padmaprakash
Lead Presenter | F - 10

F - 11: Education (U) 1

9:00 AM – 11:00 AM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

Adelina Martinez
Instructional Design Student Assistant | SDSU Global Campus

Brianna Brow-Rodriguez
Lead Presenter | F - 11

Ellah Fessenden

Giselle Hernandez
Lead Presenter | F - 11

Lana Yu
Lead Presenter | F - 11

Mallory Henzel
Lead Presenter | F - 11

Olivia Van Winkle

Rosabel Ibrahim
Lead Presenter | F - 11

Intentional Instructional Design: How UX/UI Principles and Design Shape Online Learning Environments

9:00 AM – 10:55 AM

UNDERGRADUATE

As online education continues to grow, intentional course design and user experience design play a crucial role in affecting student engagement, satisfaction, and learning outcomes in virtual learning environments. This research study observes how user experience/user interface (UX/UI) design principles and instructional design improve students' online learning experience. Using a comparative method, student success is measured based on improved design initiatives implemented in selected online courses managed in Canvas Learning Management System at San Diego State University's Global Campus.

Drawing from our experience as Instructional Design and Academic Media Production Student Assistants at SDSU Global Campus, and in collaboration with Senior Instructional Designers, we initially compare and evaluate courses based on a scored design evaluation framework, analyzing design elements consisting of clear navigation, layout consistency, visual hierarchy, interface clarity, and accessibility metrics. After scoring each course, we analyze student analytics, engagement metrics, accessibility audits, and student feedback to assess how course design choices impact student performance and overall experience.

Early results demonstrate that online courses with higher rates of design principles and UX/UI practices correlate to increased rates of student engagement and reported satisfaction.

The findings of this study highlight the importance of applying UX/UI design principles and intentional instructional design practices when developing online courses. Thoughtful course design not only improves usability but also fosters learning environments that are more inclusive, intuitive, and motivating, improving the effectiveness and value of online education.

POSTER

Speakers

Adelina Martinez
Instructional Design Student Assistant | SDSU Global Campus

Dolphin Tue Tran
Co-Presenter | F - 11

Impactful Instructional Design: Student Voice Motivates Online Classroom Success

9:00 AM – 10:55 AM

UNDERGRADUATE

Online education has grown exponentially as students' needs have progressed towards prioritizing flexibility and accessibility. With the evolution of online learning systems, students now have the opportunity to develop professional skills in a highly flexible environment. This study addresses the question: How do intentional instructional design (ID) elements influence instructor and student perceptions of community, professional skill growth, and long-term achievement through San Diego State University Global Campus courses? Observing several online courses developed at SDSU Global Campus, this research acknowledges and analyzes examples of instructional design work, highlighting both students' perceptions of engagement and instructors' insights. With the guidance of the SDSU Global Campus Senior ID team, student assistants support instructors in enhancing online courses across departments by applying key ID concepts, such as developing assessment outcomes using the ADDIE Model and Integrating Interactive Media to increase student engagement. Using a phenomenological approach to gather qualitative data from participants, this study employs surveys, in-depth interviews, and written testimonials from both students and instructors. Early observations suggested that students respond to online courses that value their voice and narrative; engaging coursework that draws on personal experiences allows students to connect with and apply learning outcomes. The results of this study emphasize the importance of prioritizing student voice in ID development and collaborating with instructors to promote success in the online classroom. These insights will help refine future ID strategies at SDSU Global Campus to improve student community, achievement, and career readiness.

POSTER

Speakers

Mallory Henzel
Lead Presenter | F - 11

Dolphin Tue Tran
Co-Presenter | F - 11

Learning Compassion for Transborder Students Navigating Higher Education

9:00 AM – 10:55 AM

UNDERGRADUATE

Introduction: The San Diego–Tijuana Port of Entry is the busiest international land border crossing in the world, with over one million people crossing daily, underscoring the region's deep economic, cultural, and social ties (Laidler, 2022). Among these crossers are transborder students; individuals who live in Mexico but attend colleges and universities in San Diego (Falcon, 2013). Their experience forms a distinct identity, separate from being solely Mexican or American. Many are U.S. citizens who relocated to Mexico with family yet continue their education in the U.S. (Kleyn & Porter, 2022). This proposal seeks to explore barriers transborder students face due to political tensions along the U.S.–Mexico border and academic and social challenges stemming from limited understanding by faculty and peers. Through interviews with transborder students enrolled in San Diego institutions, findings aim to inform faculty on how to better support these students and raise awareness of their daily struggles.

Research Questions:

How do political tensions at the border influence transborder students' mobility and experiences?

Do they experience exclusion or "othering" from Latinx/Chicanx peers without cross-border backgrounds?

To what extent do professors provide academic support?

Methodology: Using a phenomenological approach, this study seeks to understand the lived experiences of transborder students. Methods include:

Photovoice: Participants use photos to share their realities.

Walking pláticas: Semi-structured interviews conducted while walking, honoring the physical movement inherent in their daily commute (Gaxiola Serrano, 2023). These conversations allow participants to guide the discussion and share openly.

Criteria & Recruitment: Participants must be transborder Chicanx/Latinx students, age 18+, enrolled in a San Diego County college or university. Recruitment will occur via faculty-approved flyers on campus and social media. Students will complete consent and demographic forms. As an incentive, participants will receive a gift card.

POSTER

Speaker

B

Brianna Brow-Rodriguez

Lead Presenter | F - 11

Learning to Teach Equitable Elementary Science: Ways to Integrate Disability Frameworks in Teaching

9:00 AM – 10:55 AM

UNDERGRADUATE

The education system plays a major role in shaping our children's identities, opportunities, and the values they internalize. Our research question asks if pre-service teachers are concerned with implementing disability inclusion concepts and disability justice principles, and, if so, what kind of techniques are they most likely to use when enacting justice-oriented teaching practices? We analyzed pre-service teachers' stances, proposed practices, and justice-oriented teaching checklists from anti-racist, justice-oriented science teaching methods courses. We found that pre-service teachers' planning and teaching strategies had the most evidence for the principles of disability justice, and pre-service teachers were most likely to utilize in-lesson techniques to implement their justice-oriented teaching methods. Teachers are also most likely to accommodate students' needs when planning lessons and try to teach accurate history in lessons. These findings suggest that pre-service teachers already engage in practices aligned with disability justice, even when disability is not explicitly named, which indicates meaningful opportunities for professional learning that more intentionally bridges anti-racist teaching and disability frameworks. This has important implications for pre-service teachers, who can acknowledge and engage in these existing strengths to cultivate more accessible science classrooms. Future research could consider how pre-service teachers implement explicit disability language and how these practices influence students' learning experiences and outcomes.

POSTER

Speakers

Ellah Fessenden

E

Emerson Burton

Co-Presenter | F - 11

Family Involvement in Career Pathways for First-Generation Hispanic and Latiné Students.

9:00 AM – 10:55 AM

UNDERGRADUATE

During emerging adulthood, students experience new academic and social environments that can shift how families engage in their career development. For first-generation college students (FGCS), many of whom come from historically excluded communities, these transitions are layered with high demands, opaque career pathways, and intersecting identities that shape communication with family members about career goals (Benito-Gomez et al., 2021; Garcia, 2014; Chemers et al., 2011; Jackson et al., 2020; Dewsbury et al., 2019). Prior research shows that families often influence students' career decisions through encouragement, pressure toward stable or prestigious careers such as in STEM, and expectations related to upward mobility. At the same time, parents of FGCS frequently lack the college or career knowledge needed to guide decisions beyond general support, creating both strong emotional backing and limited practical advising (Tate et al., 2015). Among Latinx students, cultural values such as familismo further embed family involvement in academic and career choices, emphasizing collective success, obligation, and reciprocity (Azpeitia & Bacio, 2022). RQ: How does being first-generation in the U.S. shape the level and nature of family involvement in Hispanic and Latiné students' career decisions? To answer this question, we conducted 46 semi-structured interviews over 3 semesters with participants recruited from a large-enrollment introductory biology course at a Hispanic-Serving Institution. The interviews were 45 minutes and conducted over Zoom by two researchers sharing at least one identity with the participants (Hispanic/Latiné, Spanish-speaker, undergraduate). Preliminary qualitative analysis of one semester with 17 participants revealed at least some family involvement (12) in career decisions. FG-U.S. participants were the majority in "not involved" (3/5) and "somewhat involved" (3/8) categories compared to "very involved". This pattern supports that even though FGCS often feel emotional, financial and motivational support from their families, their parents c

POSTER

Speaker

Giselle Hernandez

Lead Presenter | F - 11

Elementary Environmental Justice Art Analyzed Through an Emotional Lens

9:00 AM – 10:55 AM

UNDERGRADUATE

Ongoing environmental injustices threaten not only ecosystems but also the emotional well-being and the future of younger generations.

My Research Question

How do 2nd and 3rd-graders' beliefs about environmental justice influence their art and artistic meaning?

I analyzed the Second and Third Grader Wetland Book from a Wetland Action unit. They created this book of letters as a culmination of what they learned across the unit, and shared it with their local mayor.

My Findings

When the art is sectioned, the left side is often associated with a happy environment with bright blues, light greens, and bright colors. For the right side, it is associated with negative emotions of sadness, and color associations show browns and darker greens.

Often, in the students' drawings, there are common themes of empathy and education initiatives in their letters to the mayor.

Commonly found are emotions of sadness and themes of death when there is pollution involved, which often include animal death, broken hearts, and sad people.

The findings have several implications for educators, children, and communities concerned about environmental justice. The emotional structuring in the art through the use of color to show positive and negative emotion indicated that art can be used as a diagnostic tool for educators, allowing them to see how children can emotionally interpret ecological harm and design instruction supporting environmental literacy and emotional well-being. The frequent themes of empathy, care for animals, and education initiatives demonstrate that children view themselves as moral agents who can advocate for environmental change. At a community level, the children's art reveals the kind of environmental harms that feel important to them. Thus providing an insight that can inform community outreach and environmental justice advocacy inspirations as well.

POSTER

Speaker

Lana Yu

Lead Presenter | F - 11

The Influence of Experiential Learning on Developing Transformative Elementary-Aged Student Mindset

9:00 AM – 10:55 AM

UNDERGRADUATE

We aim to examine how interdisciplinary experiential learning and peer collaboration foster transformative, action-oriented, and justice-based sustainability mindsets. Our research questions are:

Does interdisciplinary collaborative learning in a wetland action unit influence students to adopt a transformative, action-oriented mindset?

How did the students utilize their learned curriculum and field experience to demonstrate a justice-based approach in sustainability?

How did the wetland action curriculum help support these initiatives?

We analyzed interviews, field notes, lesson plans, and surveys from the Wetland Action Unit, finding that the combination of science, art, and hands-on learning was connected to an increase in student engagement and self-efficacy.

We found that: 1) Students developed strong connections with the natural spaces they visited. Not only is this a better means to understand our environment, but it is also pertinent for well-being and processing emotions. 2) Students deepened their understanding of observed phenomena by working together with their peers. It is human nature to want to share experiences; collaboration is vital for developing meaningful and effective solutions. 3) Students transformed their feelings and observations into action that aimed to protect the creek ecosystem and advocate for the communities' right to access the green space. For example, students were empowered to connect with local government representatives, bringing this issue to a larger audience.

Future research might conduct a pre-unit survey to support further a causal relationship between the Wetland Action Unit and an increase in engagement, self-efficacy, and action. Our research inquires about transforming mindsets, which would be beneficial to demonstrate through a positive change in the data.

POSTER

Speaker

O **Olivia Van Winkle**

Writing Instruction in a GenAI Future: Research with Students

9:00 AM – 10:55 AM

UNDERGRADUATE

As Generative AI or GenAI tools become common in academic settings, questions about authorship and authenticity in student writing have intensified. This study investigates how undergraduate students actually use and think about Large Language Models in their writing processes. Through student-researcher partnerships, an undergraduate researcher conducts intake interviews with participants, collects screen-recorded videos of them using GenAI during writing assignments, then conducts follow-up interviews to explore their decision-making processes. Some of the patterns revealed so far: students use GenAI for reassurance and validation of their ideas, as a brainstorming tool for generating initial thoughts, and report feeling social pressure to use it because they believe their peers are doing so. Rather than simply embracing or rejecting the technology, students navigate these tensions in ways that demonstrate active negotiation rather than passive adoption. This research contributes to developing pedagogical approaches that help students become thoughtful, critical users of AI tools by centering their voices and experiences, ultimately reimagining writing instruction as collaborative and focused on student agency in an era of rapidly evolving technology.

POSTER

Speaker

R **Rosabel Ibrahim**
Lead Presenter | F - 11

F - 12: Health Nutrition and Clinical Sciences (U/G) 1

9:00 AM – 11:00 AM | Location: Montezuma Hall

UNDERGRADUATE UNDERGRADUATE/GRADUATE

POSTER

Speakers

A **Ashley Nechyba**
Lead Presenter | F - 12

C **Carter Michnevich**
Lead Presenter | F - 12

C **Celeste Lineiro**
Lead Presenter | F - 12

I **Isabella Perez**

J **Jack McFadden-Mitchell**
Lead Presenter | F - 12

Natalie Rittman
Lead Presenter | F - 12

Sierra McFarlin
Lead Presenter | F - 12

Xitlali Ortega
Lead Presenter | F - 12

Heart Rate Variability in Young Adults with Prenatal Alcohol Exposure

9:00 AM – 10:55 AM

MASTER'S

Fetal Alcohol Spectrum Disorders (FASD) is an umbrella term for neurodevelopmental disabilities caused by prenatal alcohol exposure (PAE). PAE can alter physical, brain, and behavioral development. FASD is estimated to affect 1-5% of live births in the United States. Behavioral problems are commonly seen in children with FASD including oppositional defiance disorder and conduct disorder, indicating poor stress regulation. Indeed, children with FASD display increased cortisol and increased anxiety. PAE is also associated with poor mid-life health outcomes; however, little is known about the development of stress-related systems throughout adulthood. Heart rate variability (HRV) is a metric for autonomic nervous system balance and can be used as a measure of stress regulation.

Participants (n=15) were recruited remotely and provided with a wearable Oura Ring device. Participants were young adults, ages 18 to 30. One group of participants reported an FASD diagnoses (PAE=8), whereas the other group served as controls (CON=7). For two weeks, participants wore the Oura Ring and the research team remotely monitored progress. The Oura Ring captured many variables related to sleep, activity, and stress.

Preliminary findings suggest there is a difference between heart rate (HR) and HRV in young adults with FASD when compared to typically developing individuals. HR differed between groups (PAE=69, SE=1.445; CON=59, SE=.946) by 10 beats per minute. HRV was also lower in adults with FASD (CON=65, SE=3.738; PAE=56, SE=4.557), indicating increased stress.

Initial findings indicate continued differences in stress-related systems between young adults with FASD and control populations. Differences in HR and HRV indicate poor stress regulation, which could contribute to the high prevalence of behavioral disorders in children with FASD and poor mid-life health outcomes.

Supported by RSA Small Grants Program.

POSTER

Speaker

Ashley Nechyba
Lead Presenter | F - 12

Pulmonary function responses to exercise-induced muscle damage

9:00 AM – 10:55 AM

MASTER'S

INTRODUCTION

Exercise-induced muscle damage (EIMD) results from unaccustomed or high-intensity exercise and is characterized by transient elevations in systemic inflammation and oxidative stress. While the local muscular consequences of EIMD are well established, its effects on distal organ systems, including the lungs, remain poorly understood. Severe muscle damage is associated with pulmonary impairments, suggesting that circulating inflammatory and oxidative byproducts may influence pulmonary physiology during recovery. We examined the effects of EIMD on comprehensive pulmonary function across the acute recovery period.

METHODS

Twenty-six recreationally active adults (18–40 yr) completed a downhill treadmill running protocol (−10% grade) designed to induce EIMD via eccentric loading of the lower extremities. We measured pulmonary function at baseline, 6 hr, and 24 hr post-exercise. Assessments included spirometry, body plethysmography, and diffusing capacity of the lungs for carbon monoxide (DLCO). We used repeated-measures ANOVA to evaluate changes across time, and subjective muscle soreness was assessed using a visual analog scale (VAS).

RESULTS

Forced expiratory volume in one second (FEV_1) did not differ across time following EIMD ($F[1.17, 10.5] = 1.12$, $p = 0.326$). Airway resistance (Raw) was also unchanged across time points ($F[1.88, 16.9] = 1.93$, $p = 0.178$). Diffusing capacity of the lungs for carbon monoxide (DLCO) was similar across time ($F[1.58, 14.2] = 3.33$, $p = 0.074$). Subjective muscle soreness increased following EIMD ($F[2, 27] = 33.0$, $p = 0.0001$), with elevations observed at 6 hr and 24 hr compared to baseline.

CONCLUSION

Acute exercise-induced muscle damage increased subjective muscle soreness but did not significantly alter pulmonary function during the first 24 hours of recovery in healthy adults.

POSTER

Speaker

Carter Michnevich
Lead Presenter | F - 12

Skin Carotenoids, Food Security & Program Participation in Hispanic Adults at a San Diego FQHC

9:00 AM – 10:55 AM

UNDERGRADUATE

U.S. Hispanic/Latino households experience a high prevalence of food insecurity, or limited access to adequate food, which can diminish dietary quality and heighten vulnerability to nutrition-related diseases. We evaluated whether skin carotenoid levels differed by gender, childhood food sufficiency (CFS), household food security status (HFSS), and food and nutrition assistance program participation among a sample of Hispanic/Latino adults at a Federally Qualified Health Center (FQHC). We recruited Hispanic/Latino adults (≥18 years) from FQHC clinics. Trained researchers administered questionnaires capturing CFS and current HFSS (USDA 6-item), and collected finger scans for skin carotenoids using the VeggieMeter (range: 0 – 800). Participants self-reported gender and food and nutrition assistance program participation. Descriptive analyses in SAS 9.4 compared mean (standard deviation (SD)) carotenoid levels by gender, CFS, HFSS, and food and nutrition assistance program participation. Significance was set at P<0.05. Among 45 participants, the mean carotenoid level was 255.6 (75.8). Skin carotenoid levels did not differ by gender (women: 259.1 (79.8); men: 236.4 (49.1), p=0.47), CFS (sufficiency: 249.6 (76.8); insufficiency: 266.4 (75.3), p=0.48), or HFSS (food-secure: 249.3 (83.4); food-insecure (258.8 (73.1), p=0.70). However, carotenoid levels were marginally different by level of participation in food and nutrition assistance programs (p=0.05); participants enrolled in no programs had the highest mean score (279.6 (84.1)), followed by those in ≥2 programs (274.8 (64.9)) and those in one program (222.5 (65.0)). Skin carotenoid levels did not differ by gender, CFS, or current HFSS among our sample group, but were different by level of participation in food and nutrition assistance programs. For eligible individuals, multiple programs may better support adequate fruit and vegetable intake. Greater economic means or social resources may explain higher fruit and intake among those not enrolled in programs.

POSTER

Speaker

Celeste Lineiro

Lead Presenter | F - 12

Sleep and Depression Burdens Linked to Musculoskeletal Pain in Latin/Hispanic Adults With Long COVID

9:00 AM – 10:55 AM

UNDERGRADUATE

Marginalized groups, including Latin/Hispanic communities, disproportionately experience high rates of long-COVID, yet little is known about how this chronic condition contributes to persistent symptom outcomes. This study examines how musculoskeletal symptoms influence sleep-related impairment and depression among Latin/Hispanic populations with long-COVID. Baseline survey data were collected from 500 adult participants in a longitudinal study, with 287 Latin/Hispanic adults reporting long-COVID symptoms. Sleep-related impairment was assessed using the PROMIS Sleep Related Impairment and depression severity was measured using PHQ-8, with higher scores on both measures indicating greater symptom severity. Participants were categorized by presence or absence of musculoskeletal pain. Independent-samples t-tests determined whether pain symptoms were associated with differences in sleep-related impairment and depression. Additionally, a Pearson correlation evaluated the relationship between sleep-related impairment and depressive symptoms. All statistical analyses were conducted using SPSS. Participants reporting muscle pain demonstrated significantly higher sleep-related impairment (M=63.17, SD= 7.73) than those without muscle pain (M=58.46, SD =7.92, t(275)=4.92, p< .001. Depression scores were also higher among participants with muscle pain (M=21.00, SD=6.27) compared to those without (M=18.20, SD=5.67), t(272)=3.85, p < .001. Similar patterns emerged for joint pain as individuals with joint pain had elevated sleep-related impairment (M=63.47, SD=7.79) compared to those without joint pain (M=58.72, SD =7.91, t(275)=4.82, p < .001), and higher depression scores (M=21.63, SD=6.03) compared to those without joint pain (M=18.15, SD = 5.82, t(272)=4.68, p < .001). Furthermore, sleep-related impairment and depression were strongly correlated (r=.66, p< .001). Latin/Hispanic adults with long-COVID who report musculoskeletal pain experience significantly greater sleep-related impairment and depressive symptom severity compared to those without pain.

POSTER

Speakers

Isabella Perez

Patrick Walker

Co-Presenter | F - 12

Single-Cell Analysis of Red Blood Cell Oxygen Kinetics Using Laser Wave-Mixing Spectroscopy

9:00 AM – 10:55 AM

UNDERGRADUATE

Objectives:

This study examines how biochemical and biophysical properties of red blood cells (RBCs) control oxygen binding, release, and transport at the single-cell level. We aim to quantify hemoglobin oxygenation and deoxygenation kinetics in individual RBCs and to relate these kinetics to cell-to-cell variability, membrane environment, and extracellular conditions. We test how factors such as hemoglobin concentration, cell morphology, and microenvironmental oxygen levels influence oxygen storage, delivery, and transfer efficiency under normoxic and hypoxic conditions.

Methods:

We use nonlinear multiphoton laser wave-mixing spectroscopy to monitor label-free optical signals from single RBCs with high spatial and temporal resolution. The technique probes changes in heme and hemoglobin electronic structure that report on oxygenation state and binding kinetics. We modulate oxygen partial pressure and other environmental parameters in a flow or microfluidic platform while recording wave-mixing signals from individual cells. Comparisons across different RBC populations and model systems, as well as samples with varied myoglobin or hemoglobin charge states and protein environments, allow us to quantify how acceptor properties and local conditions affect oxygen transfer.

Results:

Preliminary data show heterogeneous oxygen storage and release kinetics across single RBCs, with measurable correlations to cell size, hemoglobin content, and local oxygen environment. These observations indicate that cell-to-cell variability can significantly impact overall oxygen delivery and buffering capacity in blood. The ultrasensitive, label-free nature of multiphoton wave-mixing spectroscopy enables us to resolve fast kinetic processes and subtle changes in hemoglobin state without perturbing the system and, when needed, can incorporate fluorophore or chromophore labels to enhance specificity. This work will deepen understanding of how RBC heterogeneity and microenvironment shape oxygen transport in health and disease.

POSTER

Speaker

Jack McFadden-Mitchell

Lead Presenter | F - 12

Using Digit-In-Noise Tests To Reveal Hearing Loss and Cognitive Decline

9:00 AM – 10:55 AM

UNDERGRADUATE

Difficulty in speech understanding could be a result of hearing loss or cognitive decline. Therefore, it is necessary to examine both for a differential diagnosis. The aim of the current study is to develop and validate a screening tool, the digit-in-noise test (DIN). The DIN test requires the listener to repeat back a series of digits of varying lengths in the presence of speech babble or steady-state noise. The development of the DIN is composed of recording spoken digits (0 - 9) by a native English speaker and difficulty equalization across the 10 digits based on the DIN thresholds measured in 25 normal-hearing adults. The participants are made up of 20 females and 5 males, with a mean age of 40, and 3 hearing aid users. Validation comprises obtaining DIN thresholds, hearing sensitivity, cognitive assessments, and speech recognition performance. Pure tone audiometry was used to assess participants' hearing sensitivity. NIH Toolbox, used for the cognitive assessments, consists of seven tests that evaluate executive function, attention, working memory, processing speed, language, and episodic memory. A correlational analysis was conducted to examine the relationships between DIN thresholds and speech recognition performance, hearing sensitivity, and each cognitive aspect. The findings show that DINs of more than 3 digits had the highest correlation with speech recognition performance (Pearson $r = 0.676$, $p < .001$). All cognitive aspects, except processing speed, showed significant correlations with DINs of greater than 4 digits. Lastly, better ear PTA is highly correlated with 2-digit DIN. The results lead us to conclude that: DIN digits 3–5 are valid measures of the SRT, the cognitive and DIN tests cannot be used interchangeably due to limited correlation, and 2-digit DIN results can be used to predict better-ear PTA. These findings show the test's varied validity. With further improvements focused more on expanding correlation across all DIN digits and the cognitive test as a whole, the DIN shows promise as a future clinical screening tool.

POSTER

Speakers

Natalie Rittman

Lead Presenter | F - 12

Carlee Saavedra

Co-Presenter | F - 12

Concussion Perception and Sociocultural Pressure in Collegiate Football

9:00 AM – 10:55 AM

UNDERGRADUATE

Sport-related concussion (SRC) is a growing public health concern among young adult athletes. Evidence suggests that concussion risk, reporting behaviors, and access to proper education may vary by gender, race, and socioeconomic context. Minority athletes may experience an increase in pressure to continue participation in contact sports that may lead to social or economic opportunities, potentially influencing safety precautions and disclosure of injury. Chronic traumatic encephalopathy (CTE) is a progressive neurodegenerative disease associated with repeated head impacts and has been extensively documented in former American football players. As CTE has a post-mortem diagnosis, prior evidence supports disease severity is correlated with years of football exposure and cumulative head impacts rather than clinically diagnosed concussions alone. Currently, there is limited literature on the examination of how sociocultural factors, concussion education, and awareness practices influence head impact exposure in these critical developmental periods. The present study is a cross-sectional, observational survey design from collegiate football athletes, athletic trainers, healthcare professionals, and coaches in the San Diego region to assess the care immediately following head injury, return-to-play protocols, risk perception, perceived inequities, and access to resources. Our findings examine the current practices and examine any knowledge gaps in risk and recovery of concussion and CTE development. Understanding how sociocultural pressures shape concussion perception is a critical step toward reducing long-term neurological risk in football athletes. By identifying disparities in education, perception, and reporting, we aim to uncover institutional protocols and expectations that may influence cumulative head trauma.

POSTER

Speaker

Sierra McFarlin

Lead Presenter | F - 12

Evaluating a Continuous Glucose Monitoring Training among Primary Care Providers at a Health Center

9:00 AM – 10:55 AM

MASTER'S

A continuous glucose monitor (CGM) is a device that helps people with diabetes track their blood sugar in real time. Clinical practice guidelines recommend its use for patients with Type 2 Diabetes (T2D), and recent insurance expansions have made CGM more accessible for patients who use insulin. However, healthcare professionals (HCPs) may hesitate to prescribe CGM due to perceived cost and coverage limitations, particularly in rural and resource-limited settings.

This project looked at whether a brief training could help address those concerns. The training was delivered to 61 HCPs who care for adults with T2D at three primary care clinics within a large Federally Qualified Health Center in a rural California region. Attendees completed a 30-minute session and received a toolkit designed to support them in clinical practice. HCPs were invited to complete an optional survey before the training (T1) and immediately after (T2). At T2, seven participants completed questions on training relevance and confidence. Most respondents (approximately 86%) agreed or strongly agreed that the training was relevant to their work and felt confident using the CGM toolkit with patients. T1 responses from six providers were analyzed to identify perceived barriers to CGM use. Reported barriers included patient education needs, healthcare provider education needs, challenges related to digital literacy, and difficulties integrating CGM data into the electronic medical record (EMR).

These early findings provide insight into the barriers that rural primary care providers face when considering CGM use. Participants who completed the post-training survey viewed the training as relevant, suggesting that even a brief provider training may be well-received. Baseline responses also highlight key barriers such as patient education needs, provider education needs, and patient digital literacy. Strengthening provider readiness and addressing barriers may support increased CGM access for adults with T2D in underserved primary care settings.

POSTER

Speaker

Xitlali Ortega

Lead Presenter | F - 12

F - 13: Education (U/G) 1

9:00 AM – 11:00 AM | Location: Montezuma Hall

UNDERGRADUATE/GRADUATE

POSTER

Speakers

Alanis Vargas Trinidad

Mia Herrerias

Olivia Benchetrit

Lead Presenter | F - 13

Stephania Uribe Garcia

Lead Presenter | F - 13

Navigating the Practices of Supporting Elementary Students in a Rural Borderland Community: Through

9:00 AM – 10:55 AM

MASTER'S

This study investigates how an elementary school teacher in the U.S.-Mexico border region uses Funds of Knowledge (FoK) to support student learning. Research has shown that when teachers recognize and incorporate students' lived experiences, cultures, and identities into instruction, they foster stronger connections between students and the curriculum while furthermore promoting motivation, participation, and academic success. The purpose of this study is to highlight the practices of a teacher working in a rural borderland community who actively incorporates FoK. I will conduct a semi-structured interview with an experienced elementary school teacher working in the Calexico-Mexicali border region. The interview will explore both instructional strategies and the challenges encountered in this unique educational setting. The researcher anticipates the findings will contribute to a deeper understanding of how FoK can be applied in rural, multilingual, and transborder contexts shaped by agricultural economies and cross-border movement. Though the insights are based in transborder context, the insights gained from the interview may be valuable to educators in other regions, who serve culturally and linguistically diverse students. By documenting practical examples and insights from an experienced teacher, this study aims to provide strategies for integrating students' cultural and community knowledge into the classroom, ultimately using equitable and inclusive learning resources for the teachers.

POSTER

Speaker

Alanis Vargas Trinidad

Presentation Withdrawn

9:00 AM – 10:55 AM

MASTER'S

POSTER

Empowering Parents Through "The Whole-Brain Child": A Teacher-Action Research Project

9:00 AM – 10:55 AM

MASTER'S

The journey of parenting involves a variety of challenges that parents have to navigate to determine the best ways to support their child. "The Whole Brain Child" by Dr. Dan Siegel and Dr. Tina Payne Bryson provides parents with practical strategies for parenting using the science of what is occurring in a child's brain and how to best respond. This book provides relatable examples to help parents understand how to implement these strategies into their everyday lives. Using this as a framework, the researcher will develop a three-part parent workshop highlighting several of these strategies. Each workshop will introduce a strategy, explain the neuroscience behind a child's behavior, and model how to apply it. Parents are then guided in reflecting on their own parenting experiences and think about how this strategy can be implemented into their own experiences. This teacher action research project will be analyzed using reflective journals and parent surveys. The surveys will be analyzed quantitatively using descriptive statistics and qualitatively using thematic analysis. The findings of this project will help shape future parent workshops and provide insight into the most helpful ways to support parents on their parenting journey and increase parental self-efficacy.

POSTER

Speaker

Mia Herrerias

Learning with Agave: How Agave is Teaching Students about the Past

9:00 AM – 10:55 AM

MASTER'S

The Engaging Youth in Traditional Agave Cultivation and Stewardship 2025 project introduced undergraduate students to practical skills, including field recording, plant identification and mapping, field safety, and the cultural significance of traditional foods and the landscapes cultivated by the O'odham for generations. Through a one-week field school, students learned skills in archaeology, ethnobotany, and Geographic Information Systems (GIS) at an agave cultivation site within Saguaro National Park. They also engaged directly with Indigenous knowledge holders, learning ethical and collaborative approaches that are essential to contemporary CRM practice and to federal agencies. There were three main goals of this project: to connect students with ecological heritage through experiential learning opportunities; to aid the National Park Service in identifying the presence of Anthropogenic agave through field surveys, GIS mapping, and documentation of rock alignments associated with cultivation; and to provide students with professional development opportunities in archaeology, ethnobotany, and conservation. Learning opportunities such as these are often costly and challenging for students to access; however, by offering a low-cost, stipend-supported training model, the program expanded access to field experience that is typically prohibitively expensive for many students. Despite its brief duration, the field school introduced students to foundational skills, including field recording, mapping, plant identification, GIS workflows, and collaborative Indigenous stewardship. These skills directly align with the core qualifications sought by CRM firms and federal agencies.

POSTER

Speaker

Olivia Benchetrit

Lead Presenter | F - 13

Shared Cultural Identity and Belonging Among Latino Students at SDSU

9:00 AM – 10:55 AM

UNDERGRADUATE

Emerging adulthood (ages 18–25) is a developmental period when many young people in the United States think more deeply about who they are, what matters to them, and where they belong—a process known as identity development. For Latino young adults, this process often involves navigating the values and expectations of both their heritage culture(s) and dominant U.S. culture. While this cultural negotiation can support growth—such as increased flexibility, ethnic pride, and a stronger sense of identity—it can also be stressful when students experience conflicting expectations, pressure to assimilate, or discrimination. Through the use of focus groups, this study explored how Latino emerging adult undergraduates at San Diego State University (SDSU) think about their heritage culture, including the cultural values they feel connected to or conflicted about, and how these experiences relate to their wellbeing. Analysis from the transcripts of the audio recorded focus group conversations revealed that all participating students viewed their heritage culture as a critical aspect of their identity and wellbeing. Shared cultural identity with peers provided a sense of connection and support, even when family was not nearby. Further, students also shared feeling strong pressures from their family and school around gender roles and expectations. A theme also surfaced around feelings of disconnection and culture shock on campus, highlighting the need for institutions to better support students' cultural wellbeing.

POSTER

Speaker

S **Stephania Uribe Garcia**
Lead Presenter | F - 13

K - 1: Visual and Creative Arts Exhibit (U/G) 1

9:00 AM – 11:00 AM | Location: Montezuma Hall

UNDERGRADUATE/GRADUATE

EXHIBIT

Speakers

I **Isa Ybarra**
Lead Presenter | K - 1

J **Jason Stahl**
Lead Presenter | K - 1

K **Kerry Soori McEachern**
Lead Presenter | K - 1

M **Maryam Bolandi Kashani**

Y **Yenifer Gallardo Preciado**
Lead Presenter | K - 3

Latinx Dance as Resistance Through Printmaking

9:00 AM – 10:55 AM

MASTER'S

For my exhibition research project, I will be exploring the relationship between Latinx dance as resistance and printmaking as activism, specifically Salsa and Cumbia. The problem I'm addressing is how accessibly coded modes of protest continue to be relevant in Latinx Cultural forms and activism today. Printmaking and the dance styles of Salsa and Cumbia hold politically charged histories in uplifting marginalized voices against corruption. Salsa and Cumbia share histories of coded protest against African and Caribbean enslavement and have evolved into protest towards systemic racism and colonization today. Printmaking in Mexico has served as an important mode of sharing accessible information during revolutions and times of protest. I intend to narrate the rich histories of Salsa and Cumbia through my print-making practice of lino-print carvings. My prints will include an empowering visual representation of dancers and political text. Additionally, I will be utilizing theoretical framing based in race theory and decolonial critique, as well as secondary material through lyrics of influential Salsaterxs and Cumbierxs. Protest is more effective when it is accessible, and resistance does not solely exist as "protest" or "activism," but as art and cultural form, therefore further uplifting and relating stories of oppression and resilience with spirited, contentious media of music, dance, and printmaking.

EXHIBIT

Speaker

I **Isa Ybarra**
Lead Presenter | K - 1

Beneficial Convergence of Lighting and Projection Design Practices

9:00 AM – 10:55 AM

MASTER'S

Over the years, theatrical lighting and digital media design have a complicated relationship with the concept of convergence, or a mixing of design disciplines, in the theatre community. Too often, convergence can be positioned to exploit the knowledge of designers and to allow the producer to save money without added benefit to the designers. This has resulted in design disciplines being taught in isolation. When design disciplines can be taught in a tandem approach, this will expand the abilities of the designer by learning and growing to implement better practices and procedures. This exhibit will explore cases where projection design and lighting design as used to enhance design by applying skills and practices used by the other. Through this approach, it will demonstrate the potential of new applications as these fields continue to expand. Case Study 1 will be a look at SDSU's production of Twelfth Night, where the lighting designer used strips of LED lights to create dynamic imagery with pixel mapping. Case Study 2 will look at SDSU's production of When She Became the Moon used projection mapping to achieve constellations and imagery for lighting. Case Study 3 will look at the application of using lighting fixtures on existing architecture as a way to develop digital signage and transform spaces by using lighting fixtures to mimic a screen.

EXHIBIT

Speaker

J

Jason Stahl

Lead Presenter | K - 1

"Shield of Resonance": An Interactive Sculptural Environment Inspired by Tamarkoz Meditation

9:00 AM – 10:55 AM

MASTER'S

Shield of Resonance is an interactive sculptural environment designed in Rhino 3D and fabricated with CNC machined marine grade plywood and hand dyed tensioned thread. Developed as both a standalone installation and a research prototype for my MFA thesis, the work is inspired by the concept of the energy shield described in the Sufi practice of Tamarkoz meditation. The sculpture examines how spatial form, sensory atmosphere, and gentle contemplative guidance can support grounding, coherence, and inner equilibrium.

The structure is composed of curved CNC cut rings, precision engineered joinery, and a field of vertically tensioned threads that create an enclosure which feels both open and protective. When installed as a semi enclosed chamber, participants sit on a low ottoman and are guided through a brief heart centered Tamarkoz meditation session. The work may also be arranged as three open shield forms, each with its own seating, allowing several participants to engage in parallel. Across installations, the piece becomes a spatial metaphor for the centering effect of steady meditative practice, through which scattered thoughts and emotions gradually gather, settle, and reorganize around the heart.

This project brings together art, contemplative practice, spatial design, material research, and growing interest in how immersive environments influence attention and well being. For its presentation at SDSU, I plan to consult with a psychology faculty member to explore whether the sculpture may affect markers of calm such as heart rate, breath pattern, or subjective sense of grounding. The poster will include modeling diagrams, fabrication steps, material studies, dyed thread experiments, conceptual grounding in Tamarkoz, and a proposed framework for studying participant experience. By combining digital fabrication with contemplative design, the project aims to demonstrate how crafted environments can support clarity, balance, and deeper connection.

EXHIBIT

Speaker

K

Kerry Soori McEachern

Lead Presenter | K - 1

light heaven

9:00 AM – 10:55 AM

MASTER'S

I use computer-aided design and digital fabrication, tools that have become emblems of our technologically saturated world. This series employs 3D printing as both medium and metaphor: a recent technological achievement that, to me, also symbolizes our time and its shifting sense of personhood.

The objects are either fully transparent or produced through infill-only printing. In standard 3D printing, infill is the patterned interior structure a machine generates to fill space and control an object's strength and weight. It is essential, yet usually invisible; an inner logic hidden beneath a smooth surface. In this project, I delete the shell and print only the internal pattern to illuminate what happens behind the scenes. By removing the exterior and revealing the interior system, I make the machine's underlying order impossible to ignore.

Through these pieces, I reflect on what it means to be human in a machine-dominated world where privacy is not allowed. We live in "the transparency society" that philosopher Byung-Chul Han describes as "inferno of the same". The cold clarity of the materials and the vacant transparent objects filled with white eyes suggest a kind of emotional erosion: a depersonalization that can accompany life lived through data and AI driven answers to important questions.

Rather than offering a warning or a solution, the work holds a mirror to our complicity, inviting viewers to confront the huge cost of hyper-connection and to question the systems we so willingly embrace in exchange for convenience.

EXHIBIT

Speaker

M

Maryam Bolandi Kashani

Citrus and Cellulose Project

9:00 AM – 10:55 AM

UNDERGRADUATE

This project examines the application of sustainable materials, specifically SCOBY biocellulose and orange-peel bioplastic, in the development of eco-friendly handbags. In response to the environmental impact of traditional leather production and synthetic alternatives, we aimed to create a durable, functional product that reduces waste and promotes circular economy principles. By transforming food waste—namely orange peels and SCOBY (Symbiotic Culture of Bacteria and Yeast)—into bioplastics and biocellulose, we demonstrate how these materials can serve as eco-conscious alternatives to leather. The design of the handbag highlights the natural texture and strength of these bio-based materials, ensuring it meets the daily demands of functionality and durability. The materials used in this project are fully biodegradable and free from toxic chemicals, offering a sustainable and low-impact solution to the fashion industry's reliance on animal-based and synthetic leathers. This project contributes to the growing movement of utilizing food waste to create high-quality, functional products, thereby reducing environmental pollution while promoting food security and resource efficiency.

EXHIBIT

Speakers

Yenifer Gallardo Preciado
Lead Presenter | K - 3

Jami Aldrich
Co-Presenter | K - 3

L - 1: Theatre Presentation - Film/Trailer Screening

9:00 AM – 11:00 AM | Location: Montezuma Theatre

UNDERGRADUATE/GRADUATE

FILM

Speakers

Brian Miske
Lead Presenter | L - 1

Celia Beaumont
Lead Presenter | L - 1

Julian Rodriguez
Lead Presenter | L - 1

Selina Gonzalez
On-Air Fundraising Production Assistant | KPBS

Green Is The New Red

9:10 AM – 9:35 AM

MASTER'S

A colorblind creative details 22 years of experiences in seeing the world in different shades and trying to navigate a creative career path heavily reliant on vision.

FILM

Speaker

Brian Miske
Lead Presenter | L - 1

THE AWKWARD STAGE

9:35 AM – 10:00 AM

UNDERGRADUATE

The culmination of a semester's work in the Documentary Production class, this film is an exploration of media consumption's effect on young girls in the nine-to-twelve "tween" age demographic. Poppy, sassy, and full of heart, it tracks the history of tween media parallel to the personal journey of its director, Celia Beaumont, and its crew. This film was inspired by a TikTok announcing the new Victorious reboot. The news of a company trying to recapture the success of a long-dead tween show, delivered through a mindless doomscroll, sandwiched between a dancing video and a shopping haul, incited a lightbulb realization: the loss of corporate curation–and its subsequent replacement by social media–was the catalyst for modern tweens' accelerated development. It inspired real reflection on the underlying motivation for girls to rush out of the awkward stage: the never-ending quest for connection. Because the all-female crew were all once tweens themselves, the director opted for a hybrid expository and participatory-verite approach. Together, they recall memories from their own awkward phases and go on-site to tween hotspots to observe the modern tween in their natural habitat. Stylistically, the essayistic film takes inspiration from docuseries, like The Toys That Made Us (2017-2019), and Pixar's iconic, heartwarming shorts. It is a creative documentation of a semester of heavy research into experts, history, and the butterfly effect that has middle schoolers raiding Sephora's retinoid section.

FILM

Speaker

C

Celia Beaumont

Lead Presenter | L - 1

Front Row

10:00 AM – 10:25 AM

UNDERGRADUATE

This film is about a sound guy at a comedy club who remembers his late brother's advice to overcome his fear of doing stand-up. Based on the director's own experience working at Mic Drop Comedy, this film gives audiences a front row seat to the vibrant world of stand-up comedy and the courage it takes to step onstage. Created as a class project for the course Intermediate Filmmaking, this film went on to win Best Screenplay and Best Producing at the Fall 2025 Emerging Filmmakers Showcase at SDSU. The film stars SDSU alumnus Angel Huerta and San Diego comedian Alex Petit. Overall, this movie is a special tribute to the art form of stand-up comedy and the talented people on and offstage who make every night incredible.

FILM

Speaker

J

Julian Rodriguez

Lead Presenter | L - 1

Before He Forgets

10:25 AM – 10:50 AM

UNDERGRADUATE

Before He Forgets is a TFM 560 thesis short film surrounding the topic of Alzheimer's. The story follows Eleanor and her husband, Henry. It's Henry's last day at home before going to an assisted living facility. Over the years, he's forgotten things. Henry suffers from Alzheimer's and hasn't been able to remember his wife for a long time. Eleanor has one last day at home with him, and she'll do anything to make him remember her again. She plans a day of activities, hoping to spark his memory. In each action she takes, she fails at making him remember. When all of her hope is lost, she calls her daughter, Kathy, to take Henry away. Eleanor is absolutely devastated that her plans didn't work. Before they leave, a flower Henry is tending to rekindles his memory, and he remembers Eleanor in the last normal moment they have with one another at home.

FILM

Speaker

Selina Gonzalez

On-Air Fundraising Production Assistant | KPBS

B - 1: Behavioral and Social Sciences (G) 2

11:00 AM – 1:00 PM | Location: Legacy Suite

GRADUATE

ORAL PRESENTATION

Speakers

A

Annie Mewkill

Lead Presenter | B - 1

B

Brooke Isrow

Lead Presenter | B - 1

C

Carli Henderson

Lead Presenter | B - 1

Stephanie Morales Linares
Lead Presenter | B - 1

Stephanie Majsterski
Lead Presenter | B - 1

Visualizing SDOH and Spatiotemporal Patterns of Homeless Encampments in San Diego County

11:15 AM – 11:35 AM

MASTER'S

Homelessness continues to rise across San Diego County, where increasing housing costs, stagnant wages, and limited access to essential services have deepened inequalities. This project examines how the social and spatial conditions of neighborhoods, known as the Social Determinants of Health (SDOH), influence where homeless encampments form and persist. Using ten years of data from the American Community Survey, along with city-level data on encampments, shelters, and 311 reports, the study analyzes how socioeconomic factors, language, education, health coverage, and access to public resources relate to patterns of homelessness across the county.

By integrating traditional data sources, such as the annual Point-in-Time Count, with new, community-based data like 311 service requests and monthly Downtown Homeless Surveys, this project evaluates how real-time, volunteered geographic information can complement official counts. Through GIS-based spatial and statistical methods, including correlation analysis, hotspot detection, and geographically weighted regression, this research visualizes both spatial and temporal trends in encampments before and after the COVID-19 pandemic.

The findings aim to make homelessness more visible across time and space, offering local governments, service providers, and nonprofits a clearer understanding of where support is needed most. Ultimately, this project demonstrates how geographic data science can help communities respond to homelessness with equity, accuracy, and compassion

ORAL PRESENTATION

Speaker

Annie Mewkill
Lead Presenter | B - 1

People-Focused Norms: Interpersonal Interaction in STEM Research Labs And Student Outcomes

11:35 AM – 11:55 AM

MASTER'S

Science, technology, engineering and math (STEM) research labs are often oriented towards the agentic norms perpetuated by the broader framework and rewards system of scientific inquiry, such as individual publications and promotions. The emphasis of agentic values often results in overlooking communal values and practices, such as interpersonal interaction, within research labs. Interpersonal interaction has been demonstrated to be a crucial source of motivation in other disciplines, and I hypothesize that interpersonal interaction within the research lab is important for STEM student researchers' psychological experiences, as well as for overall lab productivity. I propose the concept of people-focused norms to highlight the specific aspects of interpersonal interaction that foster connection within the lab and convey the value of individual lab members to the research process, team, and environment. The purpose of this study is to explore the construct of people-focused norms and how they impact the research lab experiences for university STEM student researchers. I utilized a confirmatory factor analysis and structural equation model with a latent variable to analyze archival, longitudinal, self-report data. I found that people-focused norms significantly and positively predict student outcomes of research interest, feelings of competence in their work, authenticity in the lab, and STEM career interest. Furthermore, despite beliefs that interpersonal interaction is counterproductive to scientific work, I found that people-focused norms do not detract from overall lab productivity. This work can be taken as a step towards combatting beliefs that social connectedness is detrimental to STEM work environments and towards fostering engaged students who desire to pursue STEM careers.

ORAL PRESENTATION

Speaker

Brooke Isrow
Lead Presenter | B - 1

The Geography of History: Connecting Spatial Inequality and Historic Preservation

11:55 AM – 12:15 PM

MASTER'S

Historic preservation is a powerful placemaking tool that shapes and reflects the United States' historical identity. While most publications focus on the economic benefits of historic districts (Kinahan, 2019; Oba and Noonan, 2020; Zahirovic and Gibler, 2014), emerging research points to disparities in historic preservation outcomes, including the underrepresentation of marginalized communities and a correlation with historically redlined and segregated areas (Choi et al., 2024; Foster, 2021; Redaelli et al., 2024; Zionts, 2024). However, this research is often limited to small-scale case studies, leaving the broader relationship between federal-level preservation and inequality largely unknown. This gap constrains our understanding of how preservation policy can reinforce or resist spatial inequality at a systemic level.

The purpose of this research is to demystify the spatial distribution of the National Register of Historic Places and its relationship with the characteristics and inequality of the surrounding geographic areas. It investigates the rate that listings are added to the National Register of Historic Places over time in comparison with characteristics of the area at three scales: State, County, and census tract. The primary research questions are: To what extent is residential segregation (by race and ethnicity and/or class) correlated with the spatial distribution of buildings on the National Register of Historic Places for major US cities? What variables and characteristics of a place are most and least impactful in the spatial distribution of the National Register? Methods utilize analysis with Python to investigate spatiotemporal and inequality-related patterns on the National Register between 1970 and 2024. This expanded research scope may inform equitable preservation practice, which may assist marginalized communities in maintaining their cultural identity and history through built environment.

ORAL PRESENTATION

Speaker

Carli Henderson
Lead Presenter | B - 1

Los Caminos De La Vida: Family Obligations, Grit, Gender & Mental Health in Latino young immigrants

12:15 PM – 12:35 PM

MASTER'S

Latino immigrant families in the United States rely on cultural values to navigate the dominant U.S. context. Young Latino immigrants frequently assume family obligations and language brokering roles from an early age. Although these responsibilities are rooted in the cultural value of familismo, little research has examined how such obligations may relate to strengths-based constructs such as grit, or how these experiences vary by gendered socialization and how it can buffer negative mental health outcomes. Much of the existing research on family obligations and language brokering has taken a deficit-based perspective, focusing on the potential burdens these responsibilities place on immigrant youth. The purpose of this study is to adopt a strengths-based approach to examine how family obligations, language brokering, and grit intersect, as well as to explore gender differences and mental health outcomes within the Latino community.

Data were collected from 304 Latino young adults (M = 21.36 years; 81% female) enrolled in three public California universities. We conducted univariate and multivariate analyses to examine gender differences and relationships among key variables. Preliminary findings indicate that Latino young adults who report frequent brokering and high family obligations also report high levels of grit. Additionally, our data show that this is especially true for Latina women – they scored significantly higher than Latino men on grit, family obligations, and language brokering. Findings suggest that family obligations and cultural practices serve as sources of perseverance and motivation, emphasizing the grit and resilience present within Latino immigrant youth. Findings from this study aim to expand strengths-based perspectives on Latino immigrant youth by illuminating how cultural obligations intersect with perseverance, gendered expectations, and mental health. Further, practical implications of these findings will be discussed.

ORAL PRESENTATION

Speaker

Stephanie Morales Linares
Lead Presenter | B - 1

Examining Carceral Mortality: A Look into the U.S. men's Prison systems

12:35 PM – 12:55 PM

MASTER'S

In America, men's prisons have run rampant with fatalities ranging from homicides, to suicides and medical reasons which are high in overdose numbers. When considering more recent examples of medical negligence in the prison system, we can consider the COVID-19 global pandemic, which negatively impacted the already stark reality of many prison related deaths. "Rather than prisons struggling, sincerely, to slow the spread of COVID-19, witnesses call attention to how prisons constrict and evolve punishment under the guise of care" (Lackey et al., 2022).

The lack of research and statistics in this area is confusing because men's Prisons historically have high capacity rates, with some being over 100% of the inmate population filling it. So then, how can it be that the data for mortality rates in the U.S. are so low? The research and data extracted from a multitude of sources does not reflect personal conversations with formerly incarcerated individuals accounts included in some of the articles presented in this paper. "Scholars of carceral punishment should more deliberately consider the impact of crises like the pandemic, as it is certainly not the last disaster that the prison order will appropriate" (Lackey et al.,2022). In this direct quote, we see the credible message here, of what is needed for future research.

ORAL PRESENTATION

Speaker

Stephanie Majsterski
Lead Presenter | B - 1

B - 10: Behavioral and Social Sciences (G) 3

11:00 AM – 1:00 PM | Location: Presidential Suite

GRADUATE

ORAL PRESENTATION

Speakers

Amaya Lopez
Lead Presenter | B - 10

Ayla Sutton
Lead Presenter | B - 10

Isabella Mullins
Lead Presenter | B - 10

Jackelyne Garcia-Villegas
Lead Presenter | B - 10

The Color of Order: The United States' History of Racial Inequality in Policing

11:15 AM – 11:35 AM

MASTER'S

This project will examine the historical development of policing in the United States as a mechanism of racial and social control, with particular attention to its impact on minority communities. Rather than conceptualizing policing as a neutral institution designed to promote public safety, this project will analyze law enforcement through the lens of racial hierarchy, state power, and social regulation. Drawing from Critical Race Theory and previous studies of the carceral state, this analysis will argue that policing has historically defined "order" as the surveillance and punishment of marginalized populations. Using qualitative historical analyses, this study examines five key periods of policing in the United States: early slave patrols, Reconstruction and Jim Crow enforcement, Civil Rights and Chicano activism, the War on Drugs, and post-9/11 militarization. This information was gathered by synthesizing historical records, legal frameworks, and secondary scholarly literature to identify patterns of institutional continuity and adaptation in racialized policing practices across these time periods. Findings suggest that while justifications of policing have shifted over time, the underlying logic remains remarkably consistent: policing practices have repeatedly framed Black and Brown communities as sources of disorder, legitimizing heightened surveillance, coercive force, and exclusion from social and political institutions. These practices have produced lasting consequences for community trust, access to opportunity, and perceptions of safety. By situating contemporary inequities within this longer historical framework, this project contributes to broader conversations of racial equity and institutional reform. It also highlights how carceral logic is embedded in law enforcement. This will continue to shape educational, civic, and community spaces, emphasizing the need to critically examine how historical systems of oppression persist in modern forms.

ORAL PRESENTATION

Speakers

Amaya Lopez
Lead Presenter | B - 10

Madison Wilkins
Co-Presenter | B - 10

The effect of cultural continuity and ERI on Native students' experience of higher education

11:35 AM – 11:55 AM

MASTER'S

Culture impacts many facets of wellbeing for Native and Indigenous peoples. Cultural erosion and disruption due to factors such as forced assimilation, language extinction, and the historical criminalization of traditions associated with settler colonization are argued to have contributed to many health issues that disproportionately impact Native communities today, including high rates of suicide, substance abuse, and domestic violence.

One way Native communities have tried to address this cultural disruption is through educational programs that seek to develop students' connection to their Native identity and culture. Nevertheless, education can continue to contribute to cultural assimilation and disruption. Moreover, Native communities continue to lag behind with respect to educational achievement and attainment. Native American students have the lowest college attendance and graduate rates of all racial/ethnic groups. It is therefore important to examine whether and how higher educational systems today support or disrupt Native students' sense of ethnic/racial identity (ERI) and cultural continuity.

In this presentation, I synthesize findings from a literature review I conducted on the connection between cultural continuity, ERI, and educational outcomes for Native American students. This review will inform my MA thesis in which I plan to examine the relationship between cultural continuity, ERI, and Native undergraduate students' educational experiences, including their sense of belonging, perception of institutional support, measures of academic success, and perceived stress.

Major themes include the use of higher education as an important avenue for Native youth to contribute to and strengthen their communities. I also discuss the obstacles that impede Native students' ability to participate and succeed in higher education, many of which can be connected to a lack of cultural support and identity development. I discuss the implications of these findings for future research and for developing programs to better support Native students in higher education.

ORAL PRESENTATION

Speaker

Ayla Sutton
Lead Presenter | B - 10

Past and Present Comparison of Haitian Kreyol Language Ideologies and Orthography Preferences

11:55 AM – 12:15 PM

MASTER'S

This study utilizes qualitative research to investigate current language ideologies and orthography preferences of Haitian adults living in San Diego. In Haiti, the entire population speaks Haitian Creole fluently, while less than 5% speak French fluently (Degraff, 2016). Despite the small portion speaking French fluently, French is the dominant language of education which prevents the majority of the population from succeeding academically (Degraff et al., 2022). Reforms have been criticized to incorporate Kreyol-based learning (Prou, 2009) and the current orthography Kreyol system which is void of French features was criticized as well - as many regarded Kreyol as a bridge language to French (Scheiffelin & Doucet, 1994). The results suggest a shift in language ideologies and orthography preferences that regards Kreyol as its own language separate from French and as a source for educational clarity.

References

DeGraff, M., Frager, W. S., & Miller, H. (2022). Language PoLiCy in Haitian education: a History of ConfLiCt over tHe use of kreyòl as Language of instruction. Journal of Haitian Studies, 28(2), 33-95.

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Prou, M. (2009). Attempts at reforming Haiti's education system: The challenges of mending the tapestry, 1979-2004. Journal of Haitian Studies, 29-69.

Schieffelin, B. B., & Doucet, R. C. (1994). The “real” Haitian Creole: Ideology, metalinguistics, and orthographic choice. American ethnologist, 21(1), 176-200.

ORAL PRESENTATION

Speaker

Isabella Mullins

Lead Presenter | B - 10

Adapting a Faith-Based Physical Activity Program for Rural Latinas in Imperial Valley Using IM-ADAPT

12:15 PM – 12:35 PM

DOCTORAL

The multifaceted barriers arising from the intersection of ethnic identity and rural context underscore the need for culturally tailored physical activity (PA) interventions. The goal of this study is to adapt Fe en Acción, a faith-based PA intervention originally developed in suburban and urban settings, for rural Latina communities.

The study uses the Intervention Mapping (IM-ADAPT) framework, which follows 6 steps: (1) assessing needs, (2) searching for evidence-based interventions, (3) evaluating fit and planning adaptations, (4) making adaptations, (5) planning for implementation, and (6) planning for evaluation. The study team recruited 3 churches from Imperial County, a rural, desert community along the US-Mexico border. We conducted in-person interviews with church leaders and staff (N=6) and PA instructors (N=6) and held six focus groups with church members (N=34) at each church in English or Spanish. Participants were asked about barriers and facilitators to participation. Research staff audio-recorded, transcribed, and translated the interviews and focus groups. The data were analyzed by two coders using a rapid qualitative analysis approach, using summary templates and a matrix.

Findings highlight a significant need for PA opportunities within the community. The program was perceived as a good fit due to its alignment with community values (e.g., faith values) and cultural relevance (e.g.promotora led). Participants expressed concerns about the program’s outdoor activities during extreme weather and poor air quality, common in the region. Key adaptations identified included moving outdoor activities (e.g., walking groups) indoors as needed and additional heat safety training for PA instructors. Key facilitators, such as existing infrastructure for program delivery, were identified.

By adapting Fe en Acción to align with community needs, the intervention has the potential to promote PA among a rural Latina community. This study demonstrates how the IM-ADAPT framework can be applied to improve implementation.

ORAL PRESENTATION

Speaker

Jackelyne Garcia-Villegas

Lead Presenter | B - 10

Presentation Withdrawn

12:35 PM – 12:55 PM

MASTER'S

ORAL PRESENTATION

Speaker

Presenter Withdrawn

B - 11: Media in Changing World (U/G) 1

11:00 AM – 1:00 PM | Location: Leon Williams Room, Love Library 431

UNDERGRADUATE/GRADUATE

ORAL PRESENTATION

Speakers

Alondra Zuniga
Lead Presenter | B - 11

Naiima Paul
Lead Presenter | B - 11

Sofia Salazar
Lead Presenter | B - 11

Swiping Right

11:15 AM – 11:35 AM

UNDERGRADUATE

A documentary narrating the dating scene amongst college students and their experiences with dating app

ORAL PRESENTATION

Speaker

Alondra Zuniga
Lead Presenter | B - 11

Building a Bad Bitch: Social Construction of Black Feminine Identity in Doechii and Flo Milli's Raps

11:35 AM – 11:55 AM

MASTER'S

Despite research discussing the nuances of gender and Hip Hop, there are still widely preconceived notions of Hip Hop as a culture that is inherently harmful for Black women. In reframing our understanding of rap lyrics, researchers can interpret Hip Hop as a rare platform for Black women to express themselves among policing of their self expression and agency other spaces. Contemporary rappers Flo Milli and Doechii represent two examples of Black women creating music known as "stripper rap" or "pussy rap," a controversial Hip Hop subgenre that emphasizes women's sexual agency and self sufficiency. The qualitative research method of critical discourse analysis, which analyses language use and function within larger cultural structures, can be conducted through a Black feminist lens that considers the pre-existing archetypes modern representations of Black women. Flo Milli and Doechii's identities play a key role in this discourse, with both rappers being dark skinned women hailing from the South U.S. and Doechii identifying as queer. This study will conduct a Black feminist critical discourse analysis of the rap lyrics of Black dark skinned Black women rappers from the American South. The vulgarity and mature themes of the lyrics within the pussy rap genre have continued to create discourse on appropriate modes of self expression for Black women and girls, with some arguing that the language and sexuality displayed is harmful. The qualitative research will examine the discourse around pussy rap lyrics as a mode of constructing modern ideals of Black femininity and identity, with a Black feminist lens on historic archetypes of Black womanhood. I will be looking at rap lyrics from selected songs from each artist from the period of 2020-2024, utilizing Ashley Hall's subversive reclamation reading posture as the primary framework for analyzing these Black women rapper's lyrics. This research will analyze terms associated to find common themes in the ways that these two rappers reinforce or subvert traditional notions of Black femininity within pussy rap genre.

ORAL PRESENTATION

Speaker

Naiima Paul
Lead Presenter | B - 11

"The impact of ARTE in the community"

11:55 AM – 12:15 PM

MASTER'S

Art is proven to support individuals' wellbeing, particularly their self-esteem, as it opens their minds to understand their own capabilities through creative expression. This film project showcases the impact that art has had on individuals with disabilities from an art program, who are now using art as a means to generate income while developing confidence in their abilities. The project highlights the personal transformations they have experienced through art, including changes in habits, mindset, and self-belief.

ORAL PRESENTATION

Speaker

Sofia Salazar
Lead Presenter | B - 11

B - 2: Biological and Agricultural Sciences (G) 1

11:00 AM – 1:00 PM | Location: State Suite

GRADUATE

ORAL PRESENTATION

Speakers

Alicia Agas
Lead Presenter | B - 2

Amber Singh
Lead Presenter | B - 2

Josie Rivera Alfaro
Lead Presenter | B - 2

Sierra Murrell
Lead Presenter | B - 2

Tucker Heptinstall
Lead Presenter | B - 2

Targeted and Nontargeted Approaches to Assess Halogenated Pollutants in the California Brown Pelican

11:15 AM – 11:35 AM

MASTER'S

In the late 1960s, California Brown Pelicans (BRPE) experienced reproductive failure and population decline induced by the pesticide dichlorodiphenyltrichloroethane (DDT). DDT was banned in the United States in 1972, whereafter brown pelican populations began to recover. Since then, nontargeted analytical methods have identified over 45 DDT-related compounds (DDT+) in regional upper trophic level marine species, presumably originating from the persistent and chemically-complex DDT manufacturing waste deposited in the southern California Bight (SCB). In addition to DDT+, the SCB has been contaminated with legacy pollutants as well as other typically unmonitored halogenated organic compounds (HOCs). Despite these findings, contaminant monitoring for brown pelicans has been sparse, with the most recent contaminant data from 2005. Further, there is limited data on DDT+ and other unmonitored HOCs in the pelican population, including known toxic contaminants like tris(4-chlorophenylmethane) (TCPM). This study used nontargeted analysis to identify 183 HOCs in seven BRPE liver samples (131 ± 48, mean ± SD). Seventeen DDT+ compounds were identified, including four TCPM-related compounds, and 17 polychlorinated terphenyls (PCTs), all of which were not assessed in prior pelican research. Quantitative targeted analysis was conducted for three of the most abundant classes: DDT+, polychlorinated biphenyls (PCB), and polybrominated diphenyl ethers (PBDE). Among these three classes, DDT+ was the dominant chemical class (∑13DDT+, 0.56 - 197 µg/g lw), followed by (∑14PCB, 0.24 - 96 µg/g lw), and (∑6PBDE, 0.01 - 5.61 µg/g lw). ∑13DDT+ primarily consisted of p,p'-DDE (77% ± 15%), 4,4',4"-TCPM (12% ± 10%), p,p'-DDMU (6% ± 3%), and 4,4',4"-TCPMOH (5% ± 6%), of which only p,p'-DDE is traditionally monitored. These results demonstrate the continuous exposure of known historical HOCs and a chemically diverse set of under-monitored HOCs in BRPEs at similar levels, suggesting pervasive contamination of a unique profile of HOCs throughout the SCB food web.

ORAL PRESENTATION

Speaker

Alicia Agas
Lead Presenter | B - 2

Corticosterone Dosing Verification in the Italian Wall Lizard (Podarcis siculus)

11:35 AM – 11:55 AM

DOCTORAL

Organisms often find change stressful. Though humans are the cause of drastic environmental changes, we have little understanding of how stress affects the organisms around us.By inducing specific, controlled hormonal elevations and measuring performance, we can understand specific aspects of stress physiology and behavior. Glucocorticoids, such as corticosterone (CORT) in reptiles, are key metabolic hormones that are manipulated to study stress physiology. As CORT responses are often unique to taxa, the ecologically relevant dosage of CORT must be verified for each new species. Here we present the dermal dosage (0.255 ug CORT/ g lizard) we verified to elevate blood CORT to an ecologically relevant level for the Italian Wall Lizard (Podarcis siculus), a widely studied and globally introduced lacertid species. We calculated this dosage from a predictive model based on the dosing curve at four different dosages of dermally applied CORT and the maximum CORT elevation seen after a 5 min chasing stressor. Our findings suggest the ecologically relevant dosage required is significantly lower in Italian Wall Lizards than dosages previously tested and widely used in other closely related lacertid lizards. Further, this dosage is unique to the Italian Wall Lizard. Dosages for other study species should be independently verified to make more informed inferences on the biological effects of CORT elevations and stress physiology.

ORAL PRESENTATION

Speaker

Amber Singh
Lead Presenter | B - 2

Investigating the Bacteroidales injection systems in a human gut microbe

11:55 AM – 12:15 PM

DOCTORAL

The human gut microbiome plays a vital role in supporting gastrointestinal health. Bacteroidales, an important group of bacteria in the gut microbiome, possess a distinct contractile injection system (CIS) called Bacteroidales injection systems (BIS). BIS genes are remarkably prevalent. They are found in approximately 99% of healthy adult gut microbiomes in Western populations while individuals suffering from inflammatory bowel diseases (IBD), such as Crohn's disease and ulcerative colitis, exhibit significantly reduced levels of these genes. Our aim is to elucidate BIS as an important group of CIS in the human gut microbiome. To do so, we study BIS expression in vitro in B. cellulosilyticus WH2. We take a biochemical and genetic regulation approach to characterize the BIS. Through western blot of important structural proteins, we confirm protein detection of the phage-like sheath of BIS. Using RNAseq, we identified a BIS promoter and use a luciferase plasmid reporter screen to identify potential transcription factors of BIS. We investigate carbon sources that correlate with higher BIS gene levels and demonstrate increase in structure protein detection. Together, these data form the first descriptions of a novel CIS group in the human gut microenvironment and pave the way to investigating its role in human gut health.

ORAL PRESENTATION

Speaker

Josie Rivera Alfaro

Lead Presenter | B - 2

Engineering Transient Stability in Disordered Casein Proteins to Improve Solubility, Phosphorylation

12:15 PM – 12:35 PM

DOCTORAL

The global demand for reliable sources of high quality protein continues to increase as the human population grows, creating a need for sustainable alternatives to animal derived proteins. This project aims to produce the nutritious casein proteins found in milk using precision bacterial fermentation to supplement traditional dairy farming. Caseins are intrinsically disordered proteins that frequently form insoluble aggregates and are susceptible to proteolytic degradation when expressed in Escherichia coli (E. coli), which complicates purification and limits yield. To address this challenge, we are using rational design and AlphaFold3 to engineer Transient Tertiary Structure tags that temporarily stabilize bovine caseins during expression, reduce aggregation of αS1 casein, improve solubility, and increase recovery of properly folded protein, after which the tags can be removed with TEV protease. Because native phosphorylation is critical for micelle formation and functional properties, we are also developing a Bacterial Surface Display system that expresses the kinases FAM20C, CK2, and PrkD serine\threonine kinase that will phosphorylate the caseins. In addition, phosphorylation of αS1 casein is being tested in vivo through co-expression of αS1 casein and PrkD in E. coli followed by purification of the modified protein. AlphaFold3 predicts that phosphorylation increases α helical content in αS1 casein, indicating a shift from disorder to a more ordered structure that may favor micelle assembly. These approaches will be extended to the remaining casein proteins to enable production of all components required to assemble a complete and functional casein micelle. Preliminary data show that Transient Tertiary Structure tags enhance αS1 casein expression and solubility and that kinases can be expressed in the display system. Together, these strategies provide a framework for producing soluble and phosphorylated caseins by bacterial fermentation and may offer a scalable route to generate complete casein micelles for food applications to help meet global protein needs.

ORAL PRESENTATION

Speaker

Sierra Murrell

Lead Presenter | B - 2

Tolerating the Anthropocene: Squamate Life History and Patterns of Tolerance to Human-Modifications

12:35 PM – 12:55 PM

DOCTORAL

Human expansion into natural habitats is transforming ecosystems worldwide and driving rapid biodiversity loss. Understanding how a species responds to human-modified environments is crucial for promoting coexistence and preventing further losses. Reptiles, in particular, are threatened worldwide, and human activity is driving much of their population declines. However, little is known about the response to urbanization of many reptile species or about traits that may allow them to persist in the face of environmental change. Here, we used 4,861,566 community science observations of squamates globally to derive a human tolerance value for 2,290 species that accounts for a species' ability to tolerate human settlement, agriculture, human transportation, mining and energy production, and electrical infrastructure. Next, we integrated life-history data from 11,767 species and took a phylogenetic comparative approach to uncover trends of tolerance across the squamate tree and explore which life history traits may predict resistance to human modification. Broadly, we found that many squamate species were moderately tolerant of human modification, with range-restricted and smaller bodied species having lower tolerance scores. We also found a relationship between IUCN threat status and tolerance, where species classified as "Least Concern" had higher tolerance values than species in all other classifications further supporting the idea that human activity is a primary driver of species declines. Our analyses highlight the need for a better understanding of species' responses to human development and incorporation of this information into management decisions to minimize biodiversity losses as urbanization continues to spread.

ORAL PRESENTATION

Speaker

Tucker Heptinstall

Lead Presenter | B - 2

B - 3: Business, Economics & Public Administration (U/G) 1

11:00 AM – 1:00 PM | Location: Lipinsky Hospitality Suite (SSW 1608)

UNDERGRADUATE/GRADUATE

ORAL PRESENTATION

Speakers

Amanda Stader
Lead Presenter | B - 3

Kwasi Asomani
Lead Presenter | B - 3

Madeline Roke
Lead Presenter | B - 3

Rex Peacock
Lead Presenter | B - 3

Change with the Times or Stick to Your Guns? Corporate Political Activism Consumer Perceptions

11:15 AM – 11:35 AM

UNDERGRADUATE

Consumers have increasingly wanted to see brands engaging in political activity, and the marketing and public relations of many major firms have followed suit. The current consumer is well versed in the political actions that brands take, and evaluates brands based off of these actions. However, within the past year, many brands have begun to change their political stances. This study examines consumer responses, specifically with regard to purchase intention (PI), to brands taking a political stance and revoking that stance. We focused on diversity, equity, and inclusion (DEI) as a primary stance, due to the influx of firms rolling back DEI initiatives within the past year. Our first hypothesis is that consumers will have a negative perception of a brand that revokes a political stance, resulting in lower PI. Our second hypothesis is that the PI with regard to the political behavior of the firm will be moderated by the consumer's political affiliation. To analyze this, we recruited a random sample of participants through Prolific. They were presented with information about a fictional brand, and viewed one of three tweets including a stance from the brand: pro-DEI(DEI), apolitical, or revoking support for DEI(revoked DEI). Then, they were asked questions about PI as well as demographic questions like age, gender, and political affiliation. The study found that stance significantly affected PI, with the apolitical stance resulting in the highest PI followed by DEI and revoked DEI. Additionally, political affiliation was found to be a significant moderator for purchase intention with regard to the DEI stance, but not for the revoked stance. Therefore, consumers' perception of DEI was largely based on their political affiliation, while their view of the revoked stance was not. Through an understanding of how corporate political activity informs purchase behavior, we can inform brand actions regarding stance-taking and whether it's better to stick with a stance or revoke it in accordance with perceived political shifts.

ORAL PRESENTATION

Speaker

Amanda Stader
Lead Presenter | B - 3

Economic Impact of Transitioning from Annual to Perennial Wheat : Regional Input Output Analysis.

11:35 AM – 11:55 AM

MASTER'S

Fuel by the unstable nature of annual cropping systems in terms of soil degradation, high input costs, unstable employment, and vulnerability to extreme weather. To address these challenges, this novel study explores the long-term economic promise of perennial wheat developed by the Land Institute in Salina. We focus on three land-use scenarios—0 %, 50 %, and 75 % adoption of perennial wheat—projected over twenty years and aligned with the basin's water boundaries.

By combining detailed cost–yield budgets for perennial wheat with U.S. supply–using data (1997–2017) adjusted to the local scale, we build a regional Input–Output model that tracks how each scenario affects household income and job creation across farming, processing, and service industries. Our approach quantifies not only direct impacts but also the ripple effects—indirect and induced—throughout the regional economy.

Early findings suggest that shifting even half of the farmland to perennials can diversify the local economy, stabilize farm incomes, and create new agribusiness jobs while reducing reliance on imported inputs. These insights offer clear, actionable guidance for farmers weighing the switch, for policymakers shaping agricultural incentives, and for investors looking to support sustainable rural development in the Kansas River Basin.

ORAL PRESENTATION

Speaker

Kwasi Asomani
Lead Presenter | B - 3

Review of Methods: Supporting Healthy Communities in San Diego through the 1000 Cities Challenge

11:55 AM – 12:15 PM

UNDERGRADUATE

Background

The built and policy environments influence community health by impacting physical activity, transportation, walkability, and air pollution. The 1000 Cities Challenge, created by the Global Observatory of Healthy and Sustainable Cities (GOHSC), evaluates spatial and policy indicators of urban design to develop benchmarks for comparisons across global cities. Standardized methodology is needed to ensure city-wide policies are systematically identified and analyzed.

Purpose

This analysis presents an approach for analyzing dense policy text and strategies for standardizing data collection and analysis based on San Diego, CA's policy landscape. This highlights the variability in a large-scale project and aims to improve the reproducibility of findings between cities.

Methods

A team of 4 trained, local English-speaking researchers systematically collected publicly available policy documents for San Diego County. Documents were identified based on alignment with the GOHSC checklist topics, such as land use, transportation, climate resilience, and policy integration.

Results

Challenges included (1) the project's broad scope as an exhaustive checklist of healthy city indicators, (2) the checklist's broad global design, (3) identifying relevant, up-to-date policy documents for San Diego County, (4) comprehensively analyzing documents across reviewers, and (5) determining coverage of indicators with measurable targets and legal mandates. We 1) leveraged expertise to decipher policy language, 2) consulted city-level experts, and 3) used multiple reviewers with frequent consensus-building to overcome these challenges.

Conclusions

Detailed standardization methods for data and policy analysis would contribute to consistent methodologies across cities. These processes are often inconsistent and burdensome, and standardization enables easier, more reliable analysis, avoids redundancy, and promotes inter-city collaboration. The 1000 Cities Challenge could strengthen advocacy, equip policymakers with evidence-informed insights, and track sustainable city planning.

ORAL PRESENTATION

Speaker

Madeline Roke

Lead Presenter | B - 3

Water Scarcity, Agricultural Land Retirement, and Restoration Ecology in the San Joaquin Valley

12:15 PM – 12:35 PM

DOCTORAL

California's San Joaquin Valley is among the world's most productive agricultural regions, yet decades of groundwater overuse have created severe environmental and health challenges, including declining water tables, soil degradation, and increased dust and chemical exposure. To mitigate these impacts, government agencies, conservation organizations, and agricultural stakeholders have promoted large-scale land retirement and ecological restoration. However, the outcomes and community implications of these interventions remain poorly understood, particularly following the implementation of California's Sustainable Groundwater Management Act (SGMA). This dissertation examines the intersections of land retirement, ecological restoration, and groundwater policy across multiple spatial and social scales. The first component analyzes vegetation trends from 2013 to 2020 using multispectral and hyperspectral remote sensing to assess restoration trajectories on retired farmland prior to SGMA. The second integrates drone photogrammetry, LiDAR data, and spectral vegetation indices to evaluate vegetation structure and shrub distribution in 2024. The third draws on twenty-three semi-structured interviews with farmers, conservation practitioners, and water managers to examine stakeholder perceptions of restoration outcomes and land-use tradeoffs. Findings reveal measurable ecological recovery, with vegetation indices indicating sustained progress even after active management ceased. Drone-based analyses highlight the value of combining structural and spectral data to monitor post-restoration vegetation in semi-arid landscapes. Stakeholder interviews underscore both the benefits of restoration, such as groundwater recharge and improved soil health, and the perceived risks of pests and weeds affecting nearby agriculture. Together, these findings illuminate the complex ecological and social dynamics shaping restoration success under SGMA and offer practical insights for balancing water conservation, biodiversity, and agricultural sustainability in California's semi-arid interior.

ORAL PRESENTATION

Speaker

Rex Peacock

Lead Presenter | B - 3

B - 4: Education (G) 1

11:00 AM – 1:00 PM | Location: Park Boulevard

GRADUATE

ORAL PRESENTATION

Speakers

Aidan Connell

Lead Presenter | B - 4

Amanda Nonomura
Lead Presenter | B - 4

Elizabeth Nguyen
Lead Presenter | B - 4

Judd Johnson
Lead Presenter | B - 4

Olivia Fonzi
Lead Presenter | B - 4

Who belongs in Computer Science and Engineering? Gender, Equity, and CTE Pathways

11:15 AM – 11:35 AM

DOCTORAL

Computer Science and Engineering (CS/E) remain persistently man-dominant, more so than any other STEM fields in the United States. According to federal guidelines, Career and Technical Education (CTE) programs should be designed to address gender gaps in fields where women make up less than 25% of the total population, like Computer Science and Engineering. With women and other marginalized genders making up the non-dominant gender group in CS/E, this puts them at risk of performing below their actual ability when experiencing gender bias, a phenomenon called stereotype threat. The study sought to determine ways in which CS/E CTE Programs influence students' connectedness, career goals, and experiences across genders. Participants included 302 high school CS/E CTE students: 215 men, 82 women, and 5 other genders. Research items included a survey with 46 Likert-scale items and four open-ended items, and an interview of seven participants. The findings showed that non-dominant genders were more likely than men to report (a) a positive experience in their CS/E CTE Programs and (b) a positive impact on their connectedness and career goals. Although more than one third of non-dominant genders reported that they experienced gender bias in their program, certain CTE Program designs and instructional practices mitigated the risks of stereotype threat.

ORAL PRESENTATION

Speaker

Aidan Connell
Lead Presenter | B - 4

Teachers' Perspectives and Experiences of Safety at School

11:35 AM – 11:55 AM

DOCTORAL

When discussing school safety, students are the priority. Whether concerning physical well being, mental health, or cyber safety, students are the focus of safety efforts. This study illuminates the safety experiences and perspectives of another group at school: teachers. Without diminishing the importance of student safety, the purpose of this qualitative study was to investigate the school safety experiences of teachers in their own words.

The overarching research question was: what can we learn about the psychological, physical, and cyber safety of classroom teachers from teachers' experiences at their school? The methodological approach for analysis was a narrative inquiry (Battacharya, 2017). The social context was a public charter school in Southern California, near the California-Mexico border crossing point. In addition to my own reflective responses to the interview protocol, I used purposive and snowball sampling to recruit three middle school teachers for semi-structured interviews on Zoom. The interview protocol was approved by IRB and all teachers completed a consent to participate form. I conducted primary coding drawing deductively from the interview questions. I used counting and code co-occurrence to inductively tease out larger themes during secondary coding. In the third round of coding, key quotes were selected to highlight overarching themes (Tracy, 2020).

Analysis produced three themes on the experiences of safety at the school: student-focused, self-protecting behavior, and perception of threats. Overall, the participants generally felt safe at their school despite citing many incidents and concerns for their safety. Previous research has shown how the safety of teachers can influence their career choices (Gahungu, 2018) and that retaining teachers positively impacts student outcomes (Ronfeldt, et al., 2013). Implications of this study include holistic reassessment of campus safety to include everyone on campus, which could help improve teacher retention and student outcomes.

ORAL PRESENTATION

Speaker

Amanda Nonomura
Lead Presenter | B - 4

Gatekeeping in STEM: Sense of Belonging Among Students in Introductory Biology and Chemistry

11:55 AM – 12:15 PM

DOCTORAL

Sense of belonging (SOB) is essential for persistence in STEM, yet students of color and other marginalized groups often report lower belonging than their peers (Acevedo et al., 2016; Herrera et al., 2022). Some students feel pressure to dissociate from their cultural identity to fit in STEM environments (Acevedo et al., 2016). This lack of belonging can lead to higher dropout rates or changes of major among students of color who initially pursue STEM (Flynn, 2016), making the issue a critical effort aimed at diversifying the STEM workforce (National Science Foundation [NSF], 2023).

This study examines SOB among students in introductory biology and general chemistry at Hispanic Serving Institution (HSI) community colleges (CCs). These “gatekeeping” courses often determine whether students persist in STEM, especially those with limited preparation in math, biology, or chemistry. As entry points, these courses may be students' first engagement with STEM in college; however, few studies have critically explored the experiences of students of color in these courses at CCs.

Guided by sense of belonging and intersectionality frameworks, this study addresses two research questions: (1) How do academic and social belonging vary by race, gender, their intersections and discipline (biology vs chemistry)? (2) What key variables are associated with academic and social belonging?

A survey instrument was developed to investigate the two research questions employing a quantitative correlational design. This project expands upon a prior pilot study in which Latinas reported the lowest SOB and indicated that validation of cultural identities was strongly associated with belonging. Results from this study will inform faculty development, peer engagement and institutional practices that foster persistence and academic success for students of color.

ORAL PRESENTATION

Speaker

E

Elizabeth Nguyen

Lead Presenter | B - 4

Effects of Dual Credit Accumulation Among Equity Impacted Student Populations in California

12:15 PM – 12:35 PM

DOCTORAL

California’s expansion of dual enrollment (DE) programs has increased the number of students entering four-year institutions with elevated credit counts. Defined by this study as first-year advanced status (FASt), these students often arrive with academic momentum yet uneven preparation for the emotional and relational transitions required in their first year. Existing studies have observed a cadre benefits linked to DE participation yet provide limited clarity on how the number of college credits transferred intersects with emotional strain, campus interactions, and developmental adjustment for equity impacted learners. This gap frames the central problem addressed in the present study.

Thus, the purpose of this quantitative investigation is to examine how FASt designation and transferable credit load relate to first-year developmental adjustment. Additionally, the study test whether emotional distress and the quality of peer, faculty, and advisor interactions function as intervening mechanisms.

Conditional process structural equation modeling is used to estimate the direct, indirect, and moderated associations while also measuring identity characteristics. The analytic plan follows a sequential conditional process design to test 1) whether FASt status predicts developing adjustment in college, 2) if emotional distress and quality of interactions transmit these associations, and 3) how does identity and credit accumulation condition these pathways. Preliminary expectations suggest that accelerated entry may offer advantages for some students while creating strain for others, particularly those with limited guidance or inconsistent supports between high school and university settings. Furthermore, centering the experiences of historically marginalized learners, this study seeks to understand deeper nuances among this student population. Findings will help support more coherent advising structures, inform statewide policy, and improve support services for FASt students as they begin their first year of college.

ORAL PRESENTATION

Speaker

J

Judd Johnson

Lead Presenter | B - 4

A Roadmap for School Districts: Principal Experience and Engagement in Evaluation Systems

12:35 PM – 12:55 PM

DOCTORAL

Elementary school principals function as the pulse of teacher evaluation systems in primary education. To conduct evaluations successfully, principals need ongoing support from their school districts. This multi-tiered study offers a compassionate and compelling lens into how elementary school principals on TK/K-5 or TK/K-6 campuses perceive school district support in teacher evaluation systems. This research focuses on three district supports in teacher evaluations: professional development, communication, and a positive principal-district relationship. It also explores how principal perceptions correlate with principal work engagement, thereby unifying two diverse concepts under a single framework. This study will be conducted in one urban county across nine elementary school districts. Using a sequential explanatory mixed-methods design, quantitative data will provide generalizability, while qualitative data will provide depth to participants' responses. Learning the principal perspective will inspire empathy, understanding, and action among educational stakeholders. The findings of this research will serve as a roadmap for school districts, strengthening their support for elementary school principals in teacher evaluation systems.

ORAL PRESENTATION

Speaker

O

Olivia Fonzi

Lead Presenter | B - 4

B - 5: Engineering and Computer Science (G) 1

11:00 AM – 1:00 PM | Location: Pride Suite

GRADUATE

ORAL PRESENTATION

Speakers

- **Carter Faucher**
  Lead Presenter | B - 5
- **Ehsan Goftari**
  Lead Presenter | B - 5
- **Mingyue Zhang**
  Lead Presenter | B - 5
- **Nhat Truong**
  Lead Presenter | B - 5
- **Zackary Skinner**
  Lead Presenter | B - 5

Exploring Graphitization of Acrylic and Thermoplastic Polymers through New UV Photolithography Appr...

11:15 AM – 11:35 AM

DOCTORAL

Carbon electrodes with high charge storage capacity and low impedance are essential for next generation neural implant technologies. This work presents a tunable UV photolithography process for precise patterning of a variety of polymers including acrylic and thermoplastic polymers. This is followed by pyrolysis to generate carbon materials suitable for implantable applications. Convectional lithographic patterning is constrained by polymer-specific absorption wavelengths (250-400nm) and polarity. Our results show that incorporating a photoinitiator lowers energy requirements and shifts the UV absorption wavelength to the desired standard i-line UV exposures range (365nm). This wavelength alignment permits the tuning of hybrid polymer mixtures, which can be patterned prior to pyrolysis. Pyrolysis of pure and blended materials revealed distinct graphitization pathways. Ultrathin acrylic films facilitated oxygen escape but reduced carbon yield, whereas thermoplastic viscosity retained gases, producing highly porous carbon. FTIR and Raman Spectroscopy confirmed chemically distinct signatures and structurally unique carbon products, further visualized by SEM at both micro- and macro-scales. These findings establish polymer - specific mechanisms for graphitization and highlight UV photolithography as a scalable strategy for engineering hybrid carbon electrodes with tunable 2D and 3D architectures, thereby expanding the material options available for high-performance neural implants

ORAL PRESENTATION

Speaker

- **Carter Faucher**
  Lead Presenter | B - 5

High time resolution community-based air monitoring in California’s Salton Sea air basin

11:35 AM – 11:55 AM

DOCTORAL

Communities surrounding California’s Salton Sea, particularly the Imperial and Eastern Coachella Valleys, face a disproportionate burden of air pollution and related health risks. These rural, predominantly Latino, low-income regions are exposed to industrial, agricultural, and natural emission sources releasing toxic metals linked to cancers, asthma, and other adverse effects. To address this environmental injustice, the Toxic Metals Monitoring Regional Network (ToMMoRW) project was launched to provide community-driven science and sustainable monitoring tools. ToMMoRW represents a collaboration between Comité Cívico del Valle (CCV), a community-based organization focused on environmental health advocacy, and research institutions (SDSU and UCD). Together, the partners have deployed 12 low-cost Toxic-Metal Aerosol Real-Time Analyzers (TARTA), developed at UCD and SDSU, across CCV’s Identifying Violations Affecting Neighborhoods (IVAN) air monitoring network.

This collaboration empowers technicians from environmental justice communities through hands-on training to build, operate, and maintain TARTA devices during a five-day workshop held in October 2025. The training combines lectures, demonstrations, and guided laboratory sessions. Throughout the workshop, participants gain practical experience in sensor assembly, wiring, and data management, developing the confidence and technical expertise necessary to safely operate high-voltage instruments and troubleshoot potential issues during future deployments. Before and after the workshop, we conducted surveys to assess participants’ baseline knowledge, technical confidence, and perceptions of environmental monitoring.

As the technical partners of the project, the UCD and SDSU teams oversee sensor calibration, data quality assurance, and interpretation to ensure reliable and comparable measurements across the network. The resulting data will be integrated into IVAN’s open-access platform to support real-time reporting and inform mitigation strategies under California’s AB617 program.

ORAL PRESENTATION

Speakers

E **Ehsan Goftari**
Lead Presenter | B - 5

J **Jose Carias**
Co-Presenter | B - 5

Numerical and Experimental Study of Local Defect Resonance in Ultrasonic Guided Waves Scattering

11:55 AM – 12:15 PM

DOCTORAL

Ultrasonic guided waves are widely used in non-destructive evaluation (NDE) for remote detection and characterization of defects in plate-like structures. Local defect resonance (LDR) arises when guided waves interact with a geometric discontinuity and excite strong local vibration modes within the damaged region. These localized resonances manifest large displacements near the defect, strongly modify the reflection and transmission spectra, and thus provide a powerful mechanism for defect detection and characterization.

This work investigates the physical origin of LDR in isotropic elastic plates using a hybrid Global–Local (GL) computational framework for guided-wave propagation. The GL method couples an efficient global guided-wave solution with a high-fidelity local finite element model around the defect, enabling detailed resolution of defect-induced vibration with manageable computational cost. Numerical analyses show that LDR is primarily governed by coupling between incident guided waves and the intrinsic resonance modes of the defect-defined sub-structure, while boundary conditions play a secondary role. The GL model is used to study how resonance frequencies and mode shapes depend on defect size, aspect ratio, through-thickness position, and host-plate dispersion. A clear coupling condition is identified: strong LDR occurs when the defect length is an odd multiple of a quarter wavelength of the relevant local mode.

GL predictions of natural and LDR frequencies are compared with analytical solutions, full finite element simulations, and results available in the literature, showing very good agreement. Experiments further confirm the existence of LDR and its influence on broadband reflection and transmission spectra measured away from the defect, demonstrating remote excitation and sensing of LDR. This study provides a mechanistic understanding of LDR in plate-like structures and establishes an efficient, experimentally supported framework to model and exploit LDR for ultrasonic NDE.

ORAL PRESENTATION

Speaker

M **Mingyue Zhang**
Lead Presenter | B - 5

Wideband Circularly Polarized Receive Fixed Beam Array Antenna for X-/Ku-Band SATCOM

12:15 PM – 12:35 PM

DOCTORAL

The rapid advancement of low Earth orbit (LEO) satellite systems has driven interest in compact, low-cost, and high-performance antennas for satellite communication (SATCOM) terminals. While active phased arrays provide electronic beam steering, their power consumption and complexity are often prohibitive for cost- or power-limited platforms. As an alternative, fixed-beam passive arrays are attractive when a broad, stable radiation pattern with high polarization purity is sufficient. This work presents a wideband, right-hand circularly polarized (RHCP) flat-panel microstrip array antenna employing a sequential rotation (SR) feed network to enhance axial ratio (AR) bandwidth and achieve low-profile integration for X-/Ku-band downlink SATCOM applications.

The radiating element utilizes a dual-probe-fed stacked microstrip patch with driven and parasitic patches separated by a 3D-printed air-gap structure. The driven patch incorporates a diagonal crossed-slot and tuning stubs for impedance bandwidth enhancement, while orthogonal feeds enable both RHCP and LHCP operation. For this receive design, the RHCP port is excited for the downlink band (10.7–12.7 GHz), and the LHCP port is terminated. Simulation results show a 2×2 subarray achieving a wide –10 dB bandwidth of 10.19–15.67 GHz (42%), fully covering the desired band. The 8×8 array, fed through a 1-to-16 Wilkinson power divider, achieves a broadside gain of 17.4 dBic at 11.7 GHz with excellent AR performance and gain stability across the band. The inclusion of low-noise amplifiers (LNAs) at each radiating element improves overall signal reception. The proposed design provides a compact, efficient, and low-cost solution for next-generation X-/Ku-band SATCOM receive terminals.

ORAL PRESENTATION

Speaker

Nhat Truong
Lead Presenter | B - 5

Optimized 3D Printing of Martian Regolith for In-Situ Extraterrestrial Manufacturing

12:35 PM – 12:55 PM

DOCTORAL

In-situ manufacturing will be essential for future Mars missions due to the high cost of transporting materials from Earth. This study explores the direct use of Martian regolith as a feedstock for selective laser melting (SLM), eliminating the need for additives. Microstructure analysis, including scanning electron microscopy and x-ray diffraction, guided the optimization of processing conditions. The refined parameters enabled the production of printed parts with reduced geometric distortion and enhanced structural integrity. This optimized regime was successfully applied to fabricate complex-shaped components. These parts were further improved by thermally healing microcracks within the specimen, influenced using gravitational and thermal analysis, strengthening the part. Finally, analyzing the structural integrity of printed parts demonstrated the feasibility of using SLM for functional part production on Mars. These findings highlight the potential of regolith-based 3D printing as a key technology for sustainable extraterrestrial exploration and long-term habitation.

ORAL PRESENTATION

Speaker

Zackary Skinner
Lead Presenter | B - 5

B - 6: Health Nutrition and Clinical Sciences (G) 1

11:00 AM – 1:00 PM | Location: Metztli

GRADUATE

ORAL PRESENTATION

Speakers

Alex Daama
Lead Presenter | B - 6

Alexa Fields
Lead Presenter | B - 6

Cleo Spencer

Ngoc Do
Lead Presenter | B - 6

Nilay Dogan
Lead Presenter | B - 6

Interpersonal and structural determinants of HIV Incidence among Women in Wakiso and Hoima, Uganda

11:15 AM – 11:35 AM

DOCTORAL

Background

Sub-Saharan Africa accounts for nearly two-thirds of global HIV incidence, with women disproportionately affected. Although Uganda has made notable progress in HIV prevention, recent community-based, longitudinal estimates of HIV incidence among women remain limited. Prior studies have largely emphasized individual-level behaviors, often overlooking broader interpersonal, community, and structural determinants of HIV risk. Guided by the socio-ecological framework, this study examined how interpersonal, community, and structural factors influence HIV incidence among women aged 15–49 years in Wakiso and Hoima districts, Uganda.

Methods

We analyzed longitudinal data from HIV-negative women enrolled in the Africa Medical and Behavioral Sciences Organization (AMBSO) Population Health Surveillance cohort between 2018 and 2023. Person-time was calculated from baseline to follow-up HIV testing to estimate HIV incidence per 100 person-years (PY). Poisson regression models were used to estimate incidence rate ratios (IRRs) and 95% confidence intervals (CIs) for four primary exposures: intimate partner violence (IPV), food insecurity, water insecurity, and district of residence. Four independent multivariable models adjusted for age, education, marital union, alcohol use, partner HIV disclosure, and paid work.

Results

Among 3,603 HIV-negative women contributing 3,608.3 PY, the median age was 29 years (IQR: 23–37). Fifty-four seroconversions occurred, yielding an overall HIV incidence of 1.50 per 100 PY, with higher incidence in Hoima (1.61 per 100 PY) than Wakiso (1.38 per 100 PY). After adjustment, IPV was significantly associated with increased HIV incidence (adjusted IRR=3.25; 95% CI: 1.10–9.56). Food insecurity was also associated with higher HIV incidence (adjusted IRR=3.43; 95% CI: 1.10–10.67). Water insecurity and district of residence were not independently associated with HIV incidence.

Conclusion

Despite declining national HIV incidence in Uganda, interpersonal and structural vulnerabilities persist. IPV and food insecurity substantially elevate women

ORAL PRESENTATION

Speaker

Alex Daama

Lead Presenter | B - 6

Environmental Fate and Chemical Profile of Microfibers from Cigarette Filters

11:35 AM – 11:55 AM

MASTER'S

Cigarette filters are the most common littered item globally. The filters are composed of cellulose acetate, a kind of non biodegradable plastic that breaks down into microfibers when exposed to environmental conditions. Microfibers are considered especially hazardous due to their shape, which allows them to be internalized by organisms more readily than other microplastics. The current research is assessing what chemicals leach from cigarette filters under four different exposure conditions: smoked or unsmoked and light exposed or unexposed to light. The three filter types are from smoked cigarettes, unsmoked cigarettes, and pure cellulose acetate sheets (control). Nontargeted chemical analysis was conducted using two dimensional gas chromatography coupled with time-of-flight mass spectrometry (GC×GC/TOF-MS) in order to fully compare chemical profiles in the leachate and on microfibers from the exposure conditions. Light exposure mimics real environmental conditions by using a solar simulator irradiance. Smoked cigarette filters were prepared at the University of California, San Francisco using a TE10z smoking machine operated according to ISO Standard 3308:2000. Marlboro Red cigarettes were machine smoked for 10 puffs and extinguished in dry ice before storage at −20 °C until further analysis. Chromatographic features were compared using hierarchical statistical analysis (e.g., heatmaps) and categorized as persistent, degraded, or newly formed following sunlight exposure. Features were further grouped based on smoked versus unsmoked status. Identified features underwent compound identification through mass spectral similarity within the NIST database. A hazard analysis will be conducted for identified compounds using toxicity data (human and ecological), along with their physical and chemical properties. Results from this study will help understand environmental impacts of cigarette filters as one of most common forms of litter to ecosystems, wildlife, and human health.

ORAL PRESENTATION

Speaker

Alexa Fields

Lead Presenter | B - 6

Protective Factors for Intimate Partner Violence in Transgender and Nonbinary Populations

11:55 AM – 12:15 PM

MASTER'S

Purpose: Transgender and nonbinary (trans) individuals experience high rates of intimate partner violence (IPV) with unique dynamics, such as transphobia-related abuse. Prevention programs designed to address these dynamics are critically needed. Yet, current research on protective factors is limited for trans populations. The current study addresses this gap by asking: How are protective factors for IPV characterized by both 1) trans individuals with recent IPV experience and 2) service providers for this population?

Methods: As part of RADIANT, a national two-phase longitudinal cohort study, semi-structured interviews were conducted with 32 trans individuals aged 18-45 and 10 service providers. Participants were recruited from April 2024 to February 2025 via online platforms and referrals. Interviews were 1-hour on average, conducted in English, audio-recorded, and transcribed verbatim. Applied thematic analysis guided coding and theme development.

Results: Participants characterized IPV protective factors for trans populations across four themes spanning multiple levels of the Social Ecological Model (SEM). At the societal level, accessible resources facilitate independence and create pathways for healing. Participants emphasized access to financial independence and trans-affirming survivor services in particular. At the community level, affirming communities model healthy relationships and provide social support. This included connection to trans community, social support networks, and relationship role models. At the interpersonal level, relationship skills and knowledge help navigate challenges and detect abuse early. Learning how to manage emotions, communicate with accountability, and identify warning signs were importantl. At the individual level, a strong sense of self shapes expectations of relationships and stigma resilience. Participants named self love as critical for trans populations.

Conclusion: Programs seeking to reduce instances of IPV among trans populations should leverage these protective factors and promote trans affirmation across the SEM.

ORAL PRESENTATION

Speaker

Cleo Spencer

Exploring the potential of Non-Word Repetition for assessing DLD in bilinguals

12:15 PM – 12:35 PM

DOCTORAL

Purpose. This study compared nonword repetition (NWR) performance of Vietnamese monolinguals with and without developmental language disorder (DLD) to that of typically developing Vietnamese–English bilinguals. Additionally, we tested the influence of first language experience (e.g., vocabulary knowledge and language exposure) on NWR performance in bilingual children.

Method. Sixty-nine Vietnamese–speaking children, aged 4 to 6 years, were divided into three groups: typically developing Vietnamese–English bilinguals (TD_VE), typically developing Vietnamese monolinguals (TD_VO), and Vietnamese monolinguals with DLD (DLD_VO). Groups were individually matched on age and maternal education, and sex whenever possible. All children completed a Vietnamese NWR task. Mixed-effects logistic regression was used to compare NWR accuracy across groups and examine the effects of vocabulary and language exposure.

Results. The DLD_VO group performed significantly worse on the NWR task than both TD groups. TD_VE and TD_VO groups showed comparable performance. Vietnamese vocabulary knowledge and Vietnamese exposure were not associated with NWR performance in bilinguals.

Conclusions. The Vietnamese NWR task may be a promising tool for identifying children with DLD, whether they are learning Vietnamese as a single language or in combination with English.

ORAL PRESENTATION

Speaker

Ngoc Do

Lead Presenter | B - 6

Elucidating the Mechanism of Enantioselective Cyclopropanation-Ring Expansion of Indoles to Quinolin

12:35 PM – 12:55 PM

DOCTORAL

Cyclopropane rings are highly valuable structural motifs in organic synthesis, offering distinctive reactivity and a well-defined three-dimensional framework. Their importance is amplified in atroposelective skeletal editing, where they serve as key intermediates for constructing enantioenriched, pharmaceutically relevant scaffolds. In this work, we present a novel transformation that converts 3-aryl indoles into 4-aryl 3-carboxyquinolines through a cyclopropanation–ring expansion sequence. The reaction is mediated by a transition-metal carbenoid generated from the dirhodium(II) complex Rh_2(S-PTAD)$_4$ and a bromo diazoacetate, which then reacts with indole's C=C double bond to form a cyclopropane intermediate. Density functional theory (DFT) studies reveal that the cyclopropanation occurs through a stepwise mechanism, and that the selectivity-determining step is the initial C–C bond formation. In this step, the Ra conformer of the rapidly racemizing 3-aryl indole reacts with a lower activation barrier than the Sa conformer, establishing Ra as the preferred substrate. Energy decomposition analysis further shows that Ra-selectivity arises from alleviated steric hinderance. The resulting cyclopropanated indoline undergoes ring expansion before racemization can occur, ensuring that atropisomerism is preserved throughout transformation. Computational analysis also reveals a strong correlation between the final enantioselectivity and the free-energy difference between the ring-expansion and racemization barriers, highlighting the essential role of atropisomerism preservation and demonstrating how substituents on the 3-aryl group can modulate enantioselectivity.

ORAL PRESENTATION

Speaker

N **Nilay Dogan**
Lead Presenter | B - 6

B - 7: Humanities, History, Literature, & Philosophy (G) 1

11:00 AM – 1:00 PM | Location: Aztlan

GRADUATE

ORAL PRESENTATION

Speakers

A **Alice Wilshire**
Lead Presenter | B - 7

C **Caleb Cable**
Lead Presenter | B - 7

E **Edgar Brito**
Lead Presenter | B - 7

G **Gabriel Holliday**
Lead Presenter | B - 7

K **Kylie Palmer**
Lead Presenter | B - 7

US-Mexico Border Surveillance Study: Community Voices on Technology and AI

11:15 AM – 11:35 AM

MASTER'S

This study explores community perceptions of artificial intelligence (AI) and surveillance technologies along the U.S.-Mexico border, with a focus on privacy, ethics, and social impacts. Increased surveillance in this region can disrupt daily life, raise civil liberty concerns, and contribute to feelings of alienation, particularly for residents living nearest the border. To better understand these perspectives, a 39-question Spanish and English survey was conducted using snowball sampling and distributed via Qualtrics to 201 residents from San Diego, CA and Tijuana, Mexico region between August 30, 2024 till March 27, 2025. Results indicate that proximity to the border significantly shapes opinions. Individuals living farther inland generally viewed AI technologies as beneficial for enhancing security. In contrast, those residing near the border expressed heightened concerns about privacy violations, racial profiling, and potential misuse of AI. Importantly, surveillance was also found to impact psychological well-being. Research suggests that simply feeling watched can trigger behavioral self-regulation, heightened vigilance, and feelings of alienation. These effects often manifest as increased stress, anxiety, self-censorship, and social withdrawal, ultimately diminishing personal freedom. While some respondents appreciated benefits such as faster border crossings and improved law enforcement, others emphasized risks like misidentification and overreach. These diverse views illustrate the complexity of public opinion on AI surveillance. The study aims to inform policymakers by amplifying community voices, from marginalized populations, while promoting inclusive decision-making. Aligned with the UN SDG principle of "Leave No One Behind," this research supports sustainable development through equity and public engagement.

ORAL PRESENTATION

Speaker

A **Alice Wilshire**
Lead Presenter | B - 7

Sonic Subordination: Nationalist Unification in the Spanish Civil War

11:35 AM – 11:55 AM

MASTER'S

When the Spanish Civil War erupted in July 1936, Spain's political Right—the Nationalists—responded far more cohesively than the divided Left. By October, the Nationalist factions had placed Francisco Franco at their head, and his orchestrated unification of April 1937 dissolved the political autonomy of the military, the Carlists, and the Falange into a single force that would claim victory in 1939. Yet this unity was achieved not only through decree or military hierarchy, but through a convergence of cultural expression that manufactured the emotional resonance of oneness. Distinct programs of militarism, monarchism, and national syndicalism were bound together by shared fears and a mythic vision of crusade, salvation, and imperial rebirth. Franco's elevation of factional anthems—the Marcha Real, Oriamendi, and Cara al Sol—to state hymns aestheticized obedience and transformed competing identities into a chorus of submission. Through music, words, and imagery, the regime cultivated a disciplined hierarchy in which each voice was heard only in service to the state. Cultural harmony thus replaced ideological consensus: a sonic unification that masked contradiction and enforced political subordination. In this final pronunciamiento, Franco's "hard right-handed unity" transformed diversity into obedience and sound into power.

ORAL PRESENTATION

Speaker

C

Caleb Cable

Lead Presenter | B - 7

Finding Sympathetic Imaginations in J.R.R. Tolkien's Ecologies

11:55 AM – 12:15 PM

MASTER'S

J.R.R. Tolkien and Frank Herbert are perhaps the most renowned and celebrated authors in fantasy and science fiction, respectively. Through decades of writing, research, and extensive world-building, both authors crafted worlds that go beyond our wildest imaginations. The Lord of the Rings and Dune have stood the test of time and thrusted their respective genres into popular culture. Their impact in modern entertainment is undeniable as their stories have spawned muli-billion dollar franchises in addition to award-winning films that have invited audiences to discover new frontiers. Both authors delve into the best and worst of humanity by exploring religion, morality, and the environmental humanities. Despite their fame and undeniable success, some of their similarities end there. Tolkien once infamously said of Dune "In fact I dislike Dune with some intensity, and that unfortunate case it is much the best and fairest to another author to keep silent and refuse to comment". No particular reason was given by Tolkien as to why he disliked Dune. However, their differing perspectives in religion and morality are speculated to be primary reasons. Tolkien was openly Catholic and through his faith, he found sympathy not only for other people but also for nature. However, Herbert was critical of religion and asserted that it is used as a tool to dominate and exploit people and nature. Regarding morality, The Lord of Rings is clearly defined as a battle between good versus evil where good lives with and respects nature while evil destroys it to fuel industrialism and war. Dune's moral ambiguity demonstrates conflicting and often contradictory beliefs that expose human hypocrisy and deter us from having imaginative sympathy for the natural world. Despite their opposing opinions in religion and morality, this paper argues that Tolkien and Herbert still reach the same ecological conclusion: a desire for imaginative sympathy for other humans before we can truly find imaginative sympathy for the natural world they both love.

ORAL PRESENTATION

Speaker

E

Edgar Brito

Lead Presenter | B - 7

Building a City from the Kitchen Up: Culinary Labor, Memory, and the Shaping of New Orleans

12:15 PM – 12:35 PM

MASTER'S

This project explores how culinary labor shaped the racial and spatial hierarchies that built modern New Orleans. Centering kitchens as sites of both exploitation and cultural resilience, it argues that food served as a tool of power through which white New Orleanians constructed racial identity, controlled labor, and curated collective memory. Using cookbooks, WPA slave narratives, photographs, menus, and city planning maps from the late nineteenth and early twentieth centuries, the study examines how Black cooks, vendors, and domestic workers sustained the city's economy and culture while being erased from its historical record.

The thesis traces how public and private spaces, to include restaurants, markets, streetcars, and homes, formed an architecture of inequality that confined Black labor to the service of white nostalgia. Yet within these same kitchens and streets, Black cooks transformed acts of labor into acts of resistance, preserving cultural memory through recipes, rituals, and taste.

By weaving together material culture, spatial analysis, and oral history, the project bridges food history and urban history to reveal how New Orleans's celebrated cuisine is inseparable from histories of racial exclusion and survival. It also contributes to broader discussions in public history by highlighting the importance of sensory and social approaches to understanding power. Ultimately, this work argues that to "build a city from the kitchen up" is to recognize that the city's foundations of labor, memory, and identity have been constructed by those on the margins of the French Quarter.

ORAL PRESENTATION

Speaker

G

Gabriel Holliday

Lead Presenter | B - 7

Flower Power and Hanoi Jane: The American Female Body (1967-1972)

12:35 PM – 12:55 PM

MASTER'S

In the 50 years since the close of the Vietnam War, it has been characterized as an aggressive, exclusively male space by both historians and collective memory of the war. The role women played during this period has often been reduced or erased completely, despite women's heavy presence in the anti-war movement. This project seeks to understand the appropriation, or the lack thereof, of the bodies of female anti-war figures in photographic images from this era through analysis of photographs from the 1967 March on the Pentagon, and of Joan Baez and Jane Fonda. The March on the Pentagon images utilize the "flower power" movement and the usage of flowers as symbols of peace. The Baez and Fonda images serve as a comparison where one anti-war woman was able to control and maintain autonomy and agency over her body and the narrative surrounding the images she appeared whereas the other was not. This project also juxtaposes the usage of women by the anti-war movement to the usage of American "donut dollies" by the pro-war movement. "Donut dollies" were used as a representation of what good American women should be in response to anti-war women who were characterized as bad or violent. Through the investigation of the images and the stories behind them, alongside newspaper articles and letters to the editors, this project concludes that with the notable exception of Jane Fonda, anti-war women who appeared in images promoted by the larger anti-war movement maintained their agency and control of their bodies and the narratives they supported.

ORAL PRESENTATION

Speaker

K **Kylie Palmer**
Lead Presenter | B - 7

B - 8: Physical and Mathematical Sciences (G) 1

11:00 AM – 1:00 PM | Location: Mata'yuum

GRADUATE

ORAL PRESENTATION

Speakers

E **Eli Lew**
Lead Presenter | B - 8

G **Gonto Johns**
Lead Presenter | B - 8

V **Vayle Vera Cruz**
Lead Presenter | B - 8

W **Wyatt Mathers**
Lead Presenter | B - 8

K **Katrina Hinke**
Lead Presenter | B - 8

Comparative Chemical Profiling of Electric Vehicle and Conventional Tires with Hazard Ranking

11:15 AM – 11:35 AM

MASTER'S

Tire tread particles (TTPs) are generated through road friction and are known to leach toxic chemicals into aquatic ecosystems. Previous non-targeted chemical analysis has identified more than 50 chemicals from passenger car tires, such as hexa(methoxymethyl)melamine (HMMM), N-cyclohexyl-N′-phenylurea (CPU), and N-(1,3-dimethylbutyl)-N'-phenyl-p-phenylenediamine (6PPD). However, there is little information regarding the chemical profiles of electric vehicle (EV) tires, despite their faster tread wear compared to conventional tires due to their heavier components. This study analyzed the chemical profiles of TTPs leachates in water under dark conditions over a 24 hour period. Composite cryomilled tire tread (CMTT) from passenger and heavyweight vehicles was obtained from the United States Tire Manufacturers Association (USTMA), and EV tire tread was provided by Oregon State University. Chemical profile comparisons of the leachates were conducted by comprehensive two-dimensional gas chromatography coupled to time-of-flight mass spectrometry (GC×GC/TOF-MS). A total of 613 chromatographic features were detected across both sample types, of which 80 were tentatively identified compounds (TICs) based on mass spectral library matching. Additionally, the relative abundances from both tire types will be compared with those of a previously characterized passenger tire. TICs will be assessed for persistence, bioaccumulation, and toxicity properties in order to prioritize compounds for further quantitative analysis and environmental health implications. Due to their increased mechanical demands, it is expected that EV tires will contain unique chemical constituents compared to CMTT or other previously characterized passenger tires studies. These findings will provide greater perception into the chemical diversity and complexity of tire leachates, which will improve environmental health assessments regarding tire pollution.

ORAL PRESENTATION

Speaker

E **Eli Lew**
Lead Presenter | B - 8

Selective Visible-Light CO_2 Reduction via Single-Atom Nickel Heterojunction Photocatalyst

11:35 AM – 11:55 AM

DOCTORAL

Carbon dioxide (CO_2) is a significant greenhouse gas, making its conversion and utilization essential for achieving global carbon-neutrality goals. However, CO_2 is thermodynamically and kinetically stable, requiring substantial energy input for activation. Photocatalysis offers a promising route for activating CO_2 with light, enabling CO_2 conversion under mild conditions. Yet, many photocatalysts exhibit poor performance due to rapid electron–hole recombination, limited visible-light absorption, and low surface charge-carrier densities. Developing materials capable of efficiently reducing CO_2 to value-added products remains a critical challenge. Strategies such as constructing hybrid heterojunctions can enhance photocatalytic efficiency by improving charge separation. In parallel, single-atom catalysts have emerged as a powerful platform in heterogeneous catalysis, offering isolated metal sites that can fine-tune electronic properties and boost the catalytic activity of photocatalysts.

In this study, nickel single-atom (Ni_{sa}) heterojunction photocatalysts were investigated as a strategy for light-driven CO_2-to-CO conversion. The Ni_{sa} heterojunction photocatalyst was fabricated from graphitic carbon nitride (g-C_3N_4) and titanium dioxide (TiO_2) via molten-salt-assisted calcination. g-C_3N_4 enables visible-light absorption but suffers from high charge recombination. TiO_2 provides effective charge separation but primarily absorbs UV light, which represents only 3–5% of the solar radiation reaching the Earth's surface. Forming a g-C_3N_4/TiO_2 heterojunction broadens the utilization of visible light while enhancing charge separation through interfacial interactions. Incorporation of Ni_{sa} likely increased the number of charge carriers that reach the catalyst surface, thereby enhancing CO_2 reduction. The resulting Ni_{sa}@g-C_3N_4/TiO_2 photocatalyst achieved efficient photoreduction of CO_2 to CO under simulated solar irradiation, exhibiting a significantly higher yield (16.5 μmol g_cat^{-1} h^{-1}) and >80% selectivity compared with either g-C_3N_4 or TiO_2 alone.

ORAL PRESENTATION

Speaker

Gonto Johns

Lead Presenter | B - 8

Elucidating the Vibrational Stark Effect of Carbonyl Compounds as Adsorbates in MOF-74

11:55 AM – 12:15 PM

DOCTORAL

Vibrational Stark probes, whose vibrational frequencies correlate with the strength of the electric field they experience, provide a powerful tool for elucidating the effect of electrostatic interaction in complex environments. In particular, as pioneered by Boxer and coworkers, probes based on the linear vibrational Stark effect of the carbonyl (C=O) group have been used to measure the magnitude and orientation of electric fields in enzyme active sites, yielding new insights into the critical role of electrostatics in enzyme catalysis. Recently, the Boxer lab has begun exploring the use of using carbonyl-based molecules, such as dimethylformamide, acetone, and ethyl acetate, to probe electrostatics and other types of noncovalent interactions within MOF-74, a widely studied metal-organic framework relevant to gas adsorption, heterogeneous catalysis, and other related applications. Experimental measurements revealed that the electric field values inferred from the C=O vibrational frequency shift depend not only on the identity of the divalent metal in MOF-74 but also on the nature of carbonyl adsorbate.

To rationalize these observations, we employ density functional theory (DFT) calculations to quantify and analyze the electric field experienced by the C=O group for each adsorbate when bound to MOF-74's metal sites. Specifically, we optimize MOF-adsorbate structures using the periodic DFT code VASP, extract cluster models representing metal sites with bound adsorbates, and compute the electric field exerted on C=O using the absolutely localized molecular orbital (ALMO) approach implemented in Q-Chem. In addition, ALMO-based polarization and charge-transfer analyses reveal that interactions between carbonyl adsorbates and closed-shell divalent metals such as Mg2+ and Zn2+ are dominated by electrostatics, whereas transition-metal cations with unpaired d electrons display a significant degree of covalency, suggesting that nonelectrostatic effects must be accounted for to correctly interpret the vibrational spectroscopic data for carbonyl compounds adsorbed in MOF-74.

ORAL PRESENTATION

Speaker

Vayle Vera Cruz

Lead Presenter | B - 8

Elucidating the Role of Preferential Binding in Facilitating Enantioselective Reactions

12:15 PM – 12:35 PM

MASTER'S

Synthetic organic chemistry underpins advances in medicinal chemistry and drug discovery. A long-standing challenge has been designing reactions that selectively produce one enantiomer over another (R versus S), as one form of a drug may become inert or even toxic if its chirality is reversed. This can be achieved by designing catalysts that preferentially interact with one enantiomer of a substrate or stabilize substrate-catalyst complexes in specific pro-chiral conformations, thereby imparting enantioselectivity to the overall reaction. One prominent example is asymmetric proline catalysis, which leverages L-proline's unique structure to preferentially bind aldehydes in a specific conformation, a discovery recognized by the 2021 Nobel Prize in Chemistry.

In this work, we perform density functional theory (DFT) calculations to elucidate the mechanism of enantioselectivity induction in a series of asymmetric aldol reactions catalyzed by L-proline. Specifically, based on these calculations, we optimized the structures of the reactant and transition state complexes leading to the two enantioisomeric products and computed their Gibbs free energies, based on which we constructed the free energy diagrams of two reaction pathways. We found that the enantioselectivity in these reactions is not solely determined by the relative stability of one conformation of the reactant complex versus the other; rather, the difference in activation barriers (i.e., the Gibbs free energy change from the reactant state to the transition state) plays a decisive role, as it more closely aligns with the experimentally observed selectivity. In addition, we performed energy decomposition analysis (EDA) calculations to identify the key noncovalent interaction components that stabilize the transition state leading to the preferred product. This computation investigation provides new insights into the origin of enantioselectivity in L-proline catalysis, and the computational protocol established here can be applied to mechanistic studies of other catalytic reactions.

ORAL PRESENTATION

Speaker

W **Wyatt Mathers**
Lead Presenter | B - 8

When and Where Water Flows: Seasonality of Dominant Hydrologic Processes

12:35 PM – 12:55 PM

MASTER'S

Hydrologic process knowledge is integral to hydrologic model development, and understanding dominant hydrologic processes that drive system behavior is important for model accuracy. The prevalence of processes in a system can be evaluated with quantitative metrics called hydrologic signatures. However, signature calculations generally reflect annual averages of multi-year time series and may not capture intra-annual changes in process dominance. For example, signatures of watersheds in snowy regions may show overland flow as the dominant runoff process due to the influence of spring snowmelt, thereby missing other dominant processes within the system at other points in the year. We use a season-specific approach to calculate hydrologic signatures in two climatically distinct U.S. settings: snow-dominated watersheds with defined periods of snow accumulation, snowmelt, and snow-free conditions; and monsoon-influenced watersheds characterized by intense summer rainfall and extended dry periods. We selected sites within each region from the GAGES-II dataset and calculated signatures with the TOSSH toolbox in MATLAB. Results demonstrate how incorporating seasonal context elucidates dynamic process influence throughout the year, and reveal limitations in representing process variability with established signature calculation methods. Our research supports efforts to better understand seasonal variability of watershed behavior and improve predictions in ungauged catchments. Because this framework is transferable to other seasonally dynamic environments, it offers a valuable means to advance hydrologic knowledge and water resource management globally.

ORAL PRESENTATION

Speaker

K **Katrina Hinke**
Lead Presenter | B - 8

B - 9: Behavioral and Social Sciences (U) 3

11:00 AM – 1:00 PM | Location: Visionary Suite

UNDERGRADUATE

ORAL PRESENTATION

Speakers

Erin Petersen
Lead Presenter | B - 9

J **Janelle Attiq**
Lead Presenter | B - 9

M **Maya Rusnak**
Lead Presenter | B - 9

Q **Quinn Ng**
Lead Presenter | B - 9

Presentation Withdrawn

11:15 AM – 11:35 AM

UNDERGRADUATE

ORAL PRESENTATION

Speaker

P **Presenter Withdrawn**

ChatGPT Ate My Homework: A Comparative Study of Generative AI Sentiments Among SDSU Colleges

11:35 AM – 11:55 AM

UNDERGRADUATE

As generative artificial intelligence becomes an increasingly integral cog in the machine of higher education, a deep understanding of GAI usage is paramount. Student usage of GAI is a field of immense interest, with study serving as a jumping off point for comparative research of San Diego State University students. As the first CSU to launch a Bachelor's degree on AI, San Diego State University hosts an intense debate on the merits of GAI in education. This study compares the use of, viewpoints surrounding, and overall opinions of GAI between students in SDSU's three largest colleges, in an effort to highlight the multitude of positions within the debate on GAI's place in higher education. Focused on the College of Arts and Letters, Fowler College of Business, and College of Sciences, a preliminary survey followed by in-depth focus group discussions allowed us to examine student sentiments on their own GAI usage, how it's implemented in their classrooms, and what they see in the future. Understanding the ways that students think and feel about GAI informs how colleges should move forward in implementing GAI in their curricula and classrooms, further opening avenues for repeated future research.

ORAL PRESENTATION

Speaker

Erin Petersen

Lead Presenter | B - 9

Exploring the Relationship Between Dental Anxiety and Social Support Among Adults

11:55 AM – 12:15 PM

UNDERGRADUATE

Research question: How is dental anxiety related to dental care social support from providers, family, and friends? Background:Dental anxiety is a common fear or stress response during dental visits. Social support, defined as emotional or practical help people receive,may help reduce anxiety. Support from family, friends, and providers could improve dental experiences. Understanding how social support relates to dental anxiety can help the growth of interventions that promote dental health equity. Methods:A cross-sectional survey was conducted with a sample of 502 Mexican-American adults.Dental anxiety was measured with the 5-item Modified Dental Anxiety Scale (MDAS; continuous range of 5-25; higher scores showing greater anxiety). Social support for dental care from family, friends, and providers was assessed separately, using optional items from the new Oral Health Behavior Social Support (OHBSS) scales. Each pair of OHBSS items for dental fears/worries were averaged, rated on a 0-4 scale (0=Never,4=Always), higher scores reflecting more support.Social support scores were calculated for each group.Respondents were eligible to answer this optional set of social support questions if they had dental fears/worries. Of the 502, 171 participants completed both the OHBSS dental fears/worries scales and MDAS.Analyses were made in R Studio, using descriptive statistics and Spearman correlations to examine the range of each variable of interest and its bivariate relationship. Results:Participants' MDAS mean score (M) was 15.40, with a standard deviation (SD) of 6.29, showing moderate anxiety levels. OHBSS scores were: Family support (M=2.34,SD=1.41), Friend support (M=1.21,SD=1.32), Provider support (M=2.12,SD=1.43).There were no significant correlations. Correlations were close to zero for MDAS and Family support (r=0.09,p=0.24), Friend support (r=0.05,p=0.49), and Provider support (r=0.05,p=0.52).Conclusion:In this study, MDAS was not correlated with OHBSS. These findings suggest that social support from family, friends, and providers is not related to dental anxiety.

ORAL PRESENTATION

Speaker

J **Janelle Attiq**

Lead Presenter | B - 9

Maternal Dietary Choline Levels Alter the Effects of Prenatal Alcohol on Activity

12:15 PM – 12:35 PM

UNDERGRADUATE

Despite the known risks of prenatal alcohol exposure on fetal development, 14% of pregnant women still report drinking, and 5% report binge drinking. Importantly, both clinical and preclinical data indicate that supplementation with the essential nutrient choline can mitigate some of the behavioral consequences of prenatal alcohol exposure. However, choline intake is often insufficient in pregnant women, and it is not clear if choline deficiency exacerbates ethanol's teratogenic effects. Thus, this study used an animal model of prenatal alcohol exposure to examine the effects of maternal choline supplementation and deficiency on open field activity in offspring. Pregnant Sprague-Dawley rats were fed 40% (deficient), 100% (control), or 300% (supplemented) choline diets and then exposed to 6 g/kg/day ethanol via oral administration from gestational days 5-20. Offspring were tested daily from postnatal days 31-34 in an open field chamber for one hour/day during the dark cycle. Prenatal alcohol exposure increased activity levels and modestly increased risk-taking behavior among offspring given 100% dietary choline. However, when subjects were exposed to 40% or 300% dietary choline, prenatal alcohol exposure did not significantly alter activity and anxiety-like/risk-taking behaviors. Thus, as anticipated, choline supplementation mitigated behavioral alterations associated with prenatal alcohol exposure. However, surprisingly, open field activity of subjects exposed to choline deficiency was not affected by prenatal alcohol exposure. These data suggest that maternal diet can modify alcohol's teratogenic effects, indicating that dietary factors may be an important target for reducing the risk of fetal alcohol spectrum disorders. Supported by AA012446.

ORAL PRESENTATION

Speaker

Maya Rusnak
Lead Presenter | B - 9

Religiosity, Sexual Identity, and Negotiated Salience: A Critical Review of Current Theories

12:35 PM – 12:55 PM

UNDERGRADUATE

Sexual and religious identity are often considered core aspects of an individual's interpersonal and intrapersonal identity. However, most existing research focuses on the intersectionality of these identities or conversely by framing them as equally salient and potentially competing identities. This paper reviews the most prominent identity development theories and critically analyzes these theories and proposes religious identity may scaffold the development and significance of sexual identity., The paper reviews measures such as the Centrality of Religiosity Scale, the Religious Identity Index, the Lesbian, Gay, and Bisexual Identity Scale, and the Identity Centrality Scale which seek to operationalize these identities and the salience they hold. These measures also illustrate the challenge of reconciling conceptual frameworks that vary in their assumptions about identity stability and hierarchy. Finally, this review highlights a conceptual gap: rather than treating religious identity as a competing identity, future work might consider it a potential meta-structural framework that scaffolds and negotiates the salience of additional identities, such as sexual identity and potential implications for future research.

ORAL PRESENTATION

Speaker

Quinn Ng
Lead Presenter | B - 9

E - 2: Cancer Research Convergence (G) 1

11:00 AM – 1:00 PM | Location: Templo Mayor

GRADUATE

CANCER ORAL PRESENTATION SPECIAL SESSION

Speakers

Austin Rones
Lead Presenter | E - 2

Daisy Ulloa
Lead Presenter | E - 2

Elene Albekioni
Graduate Student | San Diego State University

Kayla Saadeh
Lead Presenter | E - 2

Nancy Leon-Rivera
Lead Presenter | E - 2

Utilization of an In vitro 3-D model to study multiple myeloma cancer stem cells

11:15 AM – 11:35 AM

MASTER'S

The genetic and molecular factors driving multiple myeloma initiation remain poorly defined; however, the disease is thought to originate from a single mutated plasma cell. Currently there is no well-validated surface biomarker that can identify tumor-initiating cells in multiple myeloma. For this reason, a robust protein biomarker is needed in order to pinpoint the disease-initiating plasma cells. Our study aims to address this problem by exploring the protein leucine rich repeat containing G protein-coupled receptor 4 (LGR4) as a functional biomarker of myeloma-initiating stem cells. LGR4 is a cell surface receptor that assists in the activation of the Wnt/β-catenin signaling pathway by binding to R-spondins, which connect LGR4 and Wnt signaling through LRP and Frizzled. The Wnt pathway is often deregulated in myeloma cells to promote cell survival and self-renewal. Public datasets show that LGR4 RNA expression is high in multiple myeloma cells and absent in normal plasma cells. When compared to various strains of leukemia cells, the expression in leukemia cells is significantly lower than in myeloma cells. Based on these prior studies, I hypothesize that LGR4 expression is enriched on myeloma-initiating cell subpopulations, and influences stem cell pathway activation in multiple myeloma through interactions with the tumor microenvironment. My research first aims to address this issue by utilizing flow cytometry to characterize LGR4 expression in primary patient bone marrow compared with normal control specimens. I also aim to leverage LGR4 overexpression to establish cell line-derived and patient-derived in vitro 3-D tumoroid models with the goal of investigating how enrichment of LGR4 affects myeloma cell growth in the presence of vital bone marrow microenvironment-derived support cells. With this 3-D model, I will conduct LGR4/Wnt signaling manipulations to quantify changes in myeloma cell growth along with stem cell pathway activation, which will be measured in cell viability assays and using fluorescence microscopy, qPCR, and flow cytometry methods.

CANCER ORAL PRESENTATION SPECIAL SESSION

Speaker

A

Austin Rones

Lead Presenter | E - 2

Proportion of autophagy genes increase with age in mice mammary glands

11:35 AM – 11:55 AM

DOCTORAL

Autophagy is a vital function that clears old or damaged cell parts. When autophagy decreases in a tissue, it can increase risk of diseases, such as cancer. Studies show that autophagy declines with age in most tissues and that, with age, cancer-related genes increase in the mammary gland. Our goal is to identify changes in autophagy genes in the mammary gland by comparing the gene expression of young and old adult mammary glands in mice.

To do this, we use spatial transcriptomic data of 3 month and 18 month mice mammary glands. We use a combination of clustering, marker gene filtering, and statistical analysis to identify regions of the gland that experienced autophagy gene loss or gain from 3 months to 18 months that is outside the expected range.

Results confirm that 18 month samples expressed cancer-related genes at a higher amount compared to 3 month samples. We were also able to identify that 18 month samples had a smaller proportion of regions that expressed autophagy genes compared to 3 month samples. When we look at the expression of autophagy genes in specific regions, we see that a higher proportion of fibroblast-associated regions express autophagy genes in 18 month samples compared to 3 month samples. We also found that the 18 month fibroblast-associated regions that also expressed autophagy genes highly expressed Dpp4, a cancer-related gene.

We have found that age-related autophagy loss is present in the mammary glands of old adult mice, consistent with existing literature. However, fibroblast-associated regions showcase the opposite effect, with increased activity in old adult mice. Fibroblasts are essential for structural integrity and wound-healing, an autophagy-related function. This may imply that, unlike other cell types, fibroblasts resist autophagy loss due to age. However, increased autophagy may increase metastasis in cancer, by promoting the spread of cancer cells. Therefore, high expression of Dpp4 and autophagy may increase cancer-risk.

CANCER ORAL PRESENTATION SPECIAL SESSION

Speaker

D

Daisy Ulloa

Lead Presenter | E - 2

Structural and Kinetic Characterization of Human Isocitrate Dehydrogenase 1

11:55 AM – 12:15 PM

DOCTORAL

Isocitrate dehydrogenases are among the most frequently mutated metabolic enzymes in cancer. Wild-type IDH1 and IDH2 catalyze the reversible oxidative decarboxylation of isocitrate to α-ketoglutarate. Mutations in IDH1 and IDH2 drive tumorigenesis by acquiring the ability to reduce αKG to the oncometabolite D-2-hydroxyglutarate (D2HG). These reactions rely on specific structural features, including dimerization. In cells harboring heterozygous IDH1 mutations, three dimer species are theoretically possible: WT/WT, mutant/mutant, and WT/mutant dimers. Due to this bifunctional activity, heterodimeric IDH1 may serve as a major source of D2HG. Although extensive efforts have focused on inhibiting D2HG production using selective allosteric inhibitors, resistance frequently arises from secondary mutations in the regulatory domain where these inhibitors bind. IDH1 and IDH2 share high sequence and structural similarity, except within this regulatory domain. In contrast, the corresponding region in IDH1 interconverts between unfolded (open) and folded (closed, catalytically competent) states. To address limited structural and kinetic understanding, we tested expression of WT and mutant IDH1 and used mass photometry to assess dimer formation. Our results showed no evidence of monomer exchange and confirmed formation of all three dimer species upon co-expression. After establishing a robust method to generate, visualize, and quantify these dimers in solution, we examined how inhibitors interact with oncometabolite-producing hetero- and homodimers. We further investigated conformational differences between IDH1 and IDH2 using hydrogen/deuterium-exchange mass spectrometry. By designing chimeric proteins that swap regulatory domains, we identified distinct flexibility differences between WT IDH1 and IDH2-domain-swapped IDH1. Ongoing work examines whether regulatory-domain stabilization drives allosteric inhibitor selectivity. Together, this work provides structural and kinetic insight to improve strategies for inhibiting mutant IDH-driven oncometabolite production.

CANCER ORAL PRESENTATION SPECIAL SESSION

Speaker

Elene Albekioni

Graduate Student | San Diego State University

Parental HPV Vaccine Misperceptions Scale and Effect Modification by Child Gender

12:15 PM – 12:35 PM

DOCTORAL

Background: The HPV vaccine is recommended for the prevention of oncogenic HPV types for girls since 2006 and boys since 2011 starting at age 9; in the U.S., HPV vaccination rates in boys have consistently been lower than girls. We evaluated if the effect of parental HPV vaccine hesitancy on child vaccination differed by child gender.

Methods: A cancer-focused population health assessment was conducted in San Diego County in 2019. Data were weighted to the adult population. Prevalence ratios (PRs) and 95% confidence intervals (CIs) using survey-weighted modified Poisson regression for the relationship between scale score (per standard deviation [SD]) and child not being vaccinated were modeled using separate datasets by child gender. Adjusted analyses included mixed-gender household and parent age, race/ethnicity, education, and income. Effect modification was assessed using the relative excess risk due to interaction (RERI) for additive and a ratio of PRs for multiplicative using PRs from a joint boy/girl model with an interaction term.

Results: Our sample included 113 and 126 parents in the boy and girl samples, respectively; the median parent scale score among vaccinated vs unvaccinated children in the boy sample was 22.0 vs 26.5 and in the girl sample was 22.0 vs 29.0. After adjustment, every SD increase in parental misperceptions score was associated with 1.75 times higher prevalence of not vaccinating daughters (aPR=1.75, 95% CI: 1.41, 2.10) and 1.46 times higher prevalence of not vaccinating sons (aPR=1.46, 95% CI: 0.98, 1.94); the association in boys did not reach statistical significance, but was compatible with a moderate increase. No measures of effect modification were statistically significant.

Conclusions: The parental HPV Vaccine Misperceptions Scale may better predict vaccination status for parents of girls compared to boys. One possible explanation, which aligns with previous findings, is that not vaccinating boys may be related to not knowing it is recommended or lacking information as opposed to the hesitancy factors explored in the scale.

CANCER ORAL PRESENTATION SPECIAL SESSION

Speaker

Kayla Saadeh

Lead Presenter | E - 2

Impacts of Endothelial Cell Autophagy Inhibition on Tumorigenesis

12:35 PM – 12:55 PM

DOCTORAL

Metastasis is the leading cause of cancer-related mortality and especially severe in hormone receptor–negative breast cancers, where treatment options are limited. Endothelial cells regulate vascular integrity and tumor cell extravasation, playing a key role in metastasis. Autophagy, a conserved degradative pathway supporting tumor cell metabolic adaptation, is being explored as a therapeutic target, yet its impact on tumor progression and metastasis remains poorly understood. To define the role of endothelial autophagy in breast tumor progression, we generated endothelial cell–specific Atg12 and Atg5 knockout (ECKO) mice driven by the Cdh5CreER promoter. In orthotopic transplantation of MMTV-PyMT tumor organoids and genetic crosses to PyMT mice, Atg12 ECKO mice displayed delayed primary tumor growth compared to controls. Mid-stage Atg12 ECKO tumors exhibited increased apoptosis, while proliferation and necrosis were unchanged at endpoint, indicating that endothelial autophagy promotes tumor cell survival during mid-stage progression. Despite increased $CD31^{+}$ vascular density, Atg12 ECKO tumors showed elevated HIF1-α, consistent with impaired vascular function and hypoxia. Following surgical resection, Atg12 ECKO mice exhibited increased tumor recurrence and lung metastasis, and tail vein injection of PyMT cells into tumor-naïve mice confirmed enhanced metastatic outgrowth. To assess tumor-type specificity, we used the Rat insulin promoter–SV40 Large T antigen model of pancreatic neuroendocrine tumors. Endothelial Atg12 deletion did not alter primary tumor burden or survival, in contrast to PyMT tumors, but increased liver micrometastasis, indicating context-dependent effects. Together, these findings reveal context-dependent roles for endothelial autophagy in tumor growth and metastasis and highlight the need to consider metastatic outcomes when targeting autophagy in cancer therapy.

CANCER ORAL PRESENTATION SPECIAL SESSION

Speaker

Nancy Leon-Rivera
Lead Presenter | E - 2

G - 1: Health Nutrition and Clinical Sciences (U) 1

11:00 AM – 1:00 PM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

Adrienne Manheimer
Lead Presenter | G - 1

Aileen Choe
Lead Presenter | G - 1

Andrea Laine

Jackson Patterson

Jaicie Nogosek
Lead Presenter | G - 1

Jake Abenojar
Lead Presenter | G - 1

Katie Dunn

Sydney Coleman

Spontaneous cardiac baroreflex sensitivity in early middle-aged non-Hispanic Black and White females

11:00 AM – 12:55 PM

UNDERGRADUATE

Non-Hispanic Black (BL) females are at a higher risk for cardiovascular disease compared to females from all other racial and ethnic groups and reduced spontaneous cardiac baroreflex sensitivity (cBRS) is associated with the development of the disease. Previous research suggests that there is no difference in cBRS in young healthy BL females when compared to their non-Hispanic White (WH) counterparts. However, it is unknown if in early middle-age cBRS is reduced in BL females. The aim of this study was to test the hypothesis that early middle-aged BL females have lower cBRS than early middle-aged WH females. Seven premenopausal BL females (41 ± 4 years, 27 ± 4 kg/m2) and 7 premenopausal WH females (42 ± 4 years, 28 ± 5 kg/m2) were studied. Beat-to-beat arterial blood pressure (BP; finger photoplethysmography) and heart rate (ECG) were continuously recorded during 10 minutes of supine rest. Brachial BP was measured via an automated sphygmomanometer to determine systolic, diastolic and mean BP. The sequence method was used to quantify cBRS by identifying the gain between SBP and R-to-R interval in sequences of three or more consecutive heartbeats. BL females had higher resting MAP (BL: 102 ± 15 mmHg, WH: 86 ± 10 mmHg, P = 0.038) and SBP (BL: 134 ± 20 mmHg, WH: 114 ± 11 mmHg, P = 0.032) than WH females, whereas DBP was only trending to be greater (P = 0.058). There were no differences between groups in resting HR (BL: 67 ± 5 bpm, WH: 67 ± 5 bpm, P = 0.957). cBRS was also not different in BL compared to WH females; cBRS all gain (BL: 10.7 ± 3.8 ms/mmHg, WH: 9.9 ± 4.7 ms/mmHg, P = 0.717), cBRS up gain (BL: 10.9 ± 5 ms/mmHg, WH: 9.3 ± 6.8 ms/mmHg, P = 0.627), and cBRS down gain (BL: 10.7 ± 3.2 ms/mmHg, WH: 10.7 ± 4.2 ms/mmHg, P = 0.997). These preliminary data suggest that, contrary to our hypothesis, there was no difference in cBRS between early middle-aged BL and WH females.

POSTER

Speaker

A

Adrienne Manheimer

Lead Presenter | G - 1

RNAi Knockdown of Zasp52 reveals direct and indirect protein interaction in Z-Discs of Drosophila

11:00 AM – 12:55 PM

UNDERGRADUATE

Zasp52 is a core Z-line assembly protein in Drosophila indirect flight muscles that directly binds to α-actinin and indirectly influences Sallimus (Sls) by maintaining Z-line structural integrity (Liao et al., 2016). Proper Z-line organization is essential for sarcomere stability and muscle contraction, yet the role of Zasp52 in coordinating direct and indirect protein interactions remains unknown. Human patients with skeletal muscle myopathies have been found to have mutations within the Zasps gene (Sheikh et al., 2008). Drosophila provides a powerful model to study the structural and functional roles of Zasp52 because it consists of Zasp genes that are homologous to the human Zasp genes. This study investigates how the knockdown of Zasp52 affects the interaction of direct and indirect associated proteins at the Z-line and evaluates the consequences on flight performance. RNA interference (RNAi) was used to silence Zasp52 expression in Drosophila flight muscles. Thoracic muscles were cryosectioned, and immunostaining with α-actinin and sls antibodies was performed to assess expression and localization at the Z-lines of flight muscles. Thoracic muscles were also stained with Zasp52 antibodies to validate the effectiveness of the RNAi Knockdown. Flight tests of Zasp52 knockdown flies were evaluated and categorized by whether they flew upward (U), horizontally (H), downward (D), or no flight (N). Results indicate that following the knockdown of Zasp52, a decrease in both sls and α-actinin expression was observed, with α-actinin expression being severely impacted. Zasp52 displays interdependencies between both indirect and direct proteins, while having a more significant effect on direct proteins. Furthermore, flight performance was heavily impacted following the Zasp52 knockdown with a significant increase in flies expressing downward or no flight, indicating that Zasp52 is essential in sarcomere stability and flight performance.

POSTER

Speaker

A

Aileen Choe

Lead Presenter | G - 1

Social Support and Concussion Disclosure for Historically Underrepresented Racial and Ethnic Groups

11:00 AM – 12:55 PM

UNDERGRADUATE

Cultural considerations, like race and ethnicity, may impact one's decision to seek medical care, including for sports-related concussions (SRC). The purpose of this study was to explore SRC disclosure in historically underrepresented racial and ethnic groups of collegiate athletes.

A phenomenological philosophical framework guided this study. Participants were recruited by completing a survey in which they self-reported having at least one SRC and identified as Latin, Asian, Black/African American, Indigenous, or Native Hawaiian/Pacific Islander. Following interview guide piloting with three participants, we conducted 15 semi-structured interviews until data saturation. We used Zoom to conduct and transcribe the interviews. A content analysis was completed in five-cycles with cycles one and two including literature reviews and introduction writing. We collected data in cycle three with codebook creation. Member checks and external auditors reviews were also completed in cycle three to establish data trustworthiness. We synthesized our findings and related them to the literature in cycles four and five.

Our abstract focuses on the social support theme as part of a larger study with four subthemes including positive support from surrounding individuals, rapport with healthcare providers, bystander input, and negative perception from others. Participants described that SRC disclosure was positively influenced when family, teammates, and healthcare professionals offered positive feedback, and when bystanders encouraged them to seek care. Participants also highlighted the stigma associated with SRC disclosure.

We concluded that social support plays a role in disclosure for collegiate athletes from historically underrepresented racial and ethnic groups. Social support has also been determined to influence SRC disclosure when race and ethnicity are not considered. Clinicians and others surrounding the athlete should strive to enact and facilitate encouraging relationships which may be beneficial to motivate athletes to disclose suspected SRCs.

POSTER

Speaker

Andrea Laine

Effects of Treadmill Size on Cognitive and Walking Function

11:00 AM – 12:55 PM

UNDERGRADUATE

Introduction: Dual-tasking, like walking while talking to friends, taxes both cognitive and neuromuscular systems, altering gait. Often, we assess dual-tasks using treadmill walking, yet treadmill size and speed remains variable across studies, introducing possibly variable cognitive demand. Here, we plan to investigate the effect of treadmill size and speed on cognitive performance and walking function, hypothesizing that smaller treadmills with fixed speed would lead to reduced variability and cognitive performance.

Methods: Following familiarization, participants walk under six randomized conditions: 1) full, 2) restricted surface at preferred speed,3) full surface under self-paced control, with and without visual-verbal Stroop test (incongruent color-ink pairing) for 3-minute trials. Motion data is collected with a 3D system (100 Hz, Qualysis). Walking parameters are calculated using custom MATLAB scripts, and cognitive performance is determined by % accuracy. Paired t-tests compare gait metrics between single-task and dual-task conditions.

Results and Discussion: Preliminary data from one individual's self-paced trial results showed step width increased during dual-task walking (.129±.024m) compared to baseline (.126±.029m), indicating greater side-to-side stabilization and requiring more balance with divided cognitive resources. Concurrently, step length decreased during the dual-task condition (0.600 ± 0.030 m) compared to the non-dual task (0.620 ± 0.019 m), indicating shorter, more cautious steps, as initially hypothesized, to conserve balance. Data collection is ongoing, with a target sample size of n=20.

POSTER

Speaker

Jackson Patterson

Medical Care and Coach Impact on Concussion Disclosure in Underrepresented Racial/Ethnic Groups

11:00 AM – 12:55 PM

UNDERGRADUATE

Seeking medical care for concussions is influenced by many factors, including cultural factors, which may be different for individuals based on race and ethnicity. Concussion disclosure has not been examined focusing on perspectives of individuals from historically underrepresented groups. We aimed to explore factors that influence concussion disclosure in historically underrepresented racial and ethnic collegiate athletes.

We conducted 15 semi-structured interviews with collegiate athletes who experienced at least one concussion in their lifetime and identified as Latin, Asian, Black, Indigenous, or Native Hawaiian/Pacific Islander. We completed 3 pilot interviews with Zoom and made no guide changes. All interviews were conducted using a phenomenological philosophical framework, and went through five cycles of analysis after data saturation was achieved. The first two cycles of data analysis included a literature review and introduction completion, cycle three involved collecting and ensuring data accuracy while the research team created a codebook. We also completed member checks and used an external auditor in cycle three. The final cycles consisted of synthesizing data and connecting findings to existing literature.

We discovered six themes as part of the larger study with this abstract focusing on medical care and coaches. The medical care subthemes included access to an athletic trainer, lack of appropriate medical care/quality of care, and rapport with healthcare providers. The coach theme included the following subthemes of the coach being a pivotal person, the participants' perceived value to the coach, and the participant being glorified in playing through their injury.

Our findings highlight the need to look at multiple levels within the socioecological framework, particularly at the interpersonal levels, which may influence concussion disclosure. These findings can help us guide future research towards investigating team cultures and the importance of coach and medical personnel support throughout recovery to attempt to improve athlete safety.

POSTER

Speaker

Jaicie Nogosek

Lead Presenter | G - 1

The Relationship of Grade Point Average and Socioeconomic Status on Concussion Disclosure

11:00 AM – 12:55 PM

UNDERGRADUATE

Many individuals, including general college students, do not seek care for suspected concussions for a variety of reasons. Many social determinants of health, such as academic achievement and socioeconomic status (SES), may also influence this behavior. We aimed to determine if a relationship existed between current college grade point average (GPA), family income, and SES with concussion disclosure in general college students.

We recruited participants from a large public academic institution who were 18 years or older. We requested participants' current undergraduate GPA (4.0 scale), family income (1=$0-30,000 and 11=+$300,000), and parent/guardian occupation and highest education achieved in a voluntary survey. The Hollingshead Four-Factor Index of Social Status was used to estimate SES, including parental/guardian occupation and education. We measured concussion disclosure intentions (indirect and direct; average responses), and behavior (indirect and direct; "reporters" and "non-reporters"). We calculated two linear and two logistic regressions.

Our study included 359 participants who completed at least one item in the survey, with 272 completing the survey in its entirety (completion rate=75.8%; male=87, 24.3%, female=182, 50.8%, prefer not to say=1, 0.3%, no response=88, 24.6%; age=19.7±1.6 years). We found that GPA, family income, and SES did not predict indirect and direct concussion disclosure intentions (n=266; indirect p=0.452; direct p=0.728), and indirect concussion disclosure behavior (p=0.966; n=77). However, a one-point increase in GPA decreased the odds of being a "reporter" by 80% (β=-1.61, Exp(β)=0.20, p=0.003; overall model: X2=35.14, Nagelkerke R2=0.298, p=0.004; n=141).

Students with higher GPAs may not want to seek care for a suspected concussion for fear of missing academic expectations, such as class, exams, assignments, etc. Academic accommodations are recommended following conclusions, but are utilized at the discretion of instructors. Future work should disseminate academic support information and examine perceived classroom support.

POSTER

Speaker

Jake Abenojar

Lead Presenter | G - 1

A Qualitative Analysis of Experiences With Autism-Related Services

11:00 AM – 12:55 PM

UNDERGRADUATE

Background: The transition to adulthood is challenging for autistic individuals, as they exit child-based services (Laxman et al., 2019; Taylor & Henninger, 2015). Many lack appropriate post-secondary services and face poor outcomes (Roux et al., 2015). Unfortunately, little is known about how to improve service delivery. To address this gap, this qualitative project examines the experiences, perspectives, and priorities of multi-level stakeholders in autism-related services.

Procedures: This study was deemed exempt from IRB approval. The team conducted 4 focus group interviews on HIPAA-compliant Zoom to autistic adults (n = 1), caregivers (n = 6), and speech-language pathologists (SLP; n = 9). Participants discussed their experiences with services, barriers, and goals. Interviews were transcribed and de-identified. Next, two research team members independently coded/analyzed transcripts using inductive thematic analysis (Braun and Clarke, 2012): generated and refined codes, developed a codebook, and organized themes and sub-themes. The full team reflected on, reviewed, and revised the codes and themes.

Results: Key themes across groups were: barriers to services, access to resources, and emotional toll/responsibility. Respondents differed in their sub-themes: quality of services, informal versus formal resources, funding and financial constraints, and importance of a support system.While all groups recognized systemic barriers, SLPs focused on structural barriers, such as economic/legal constraints, whereas caregivers highlighted the logistical challenges in comprehending clinician jargon (e.g., reading IEPs or understanding diagnoses). Moreover, caregivers underscored the emotional strain they endured due to the nature of their caregiving responsibilities.

Discussion: Themes from these focus groups reflect the challenges with access to autism-related services and point to the importance of sensitivity to personal perspectives in service delivery. Findings have implications for improving quality of care. Limitations and future directions will be discussed.

POSTER

Speakers

K **Katie Dunn**

A **Abigail Asare**

Co-Presenter | G - 1

Effect of Behavioral Compensation on Speech Movements in Patients with Oropharyngeal Cancer

11:00 AM – 12:55 PM

UNDERGRADUATE

Nearly 60,000 Americans are diagnosed with oropharyngeal cancer (OPC) each year (American Cancer Society, 2025). Both tumor burden (Balaguer et al., 2020) and side effects from medical intervention, such as radiation therapy (RT; Rinkel et al., 2016), negatively affect speech intelligibility, reducing quality of life (Meyer et al., 2004). These patients have smaller speech movements, which may account for the reduced intelligibility (Nip et al., 2025). Identifying strategies to increase speech movements may help these patients increase their intelligibility. Behavioral compensations, such as talking more loudly or slowly, can alter speech movement amplitudes. When asked to speak more loudly or slowly, patients with amyotrophic lateral sclerosis (ALS) demonstrate changes to tongue and jaw displacements (Mefferd & Dietrich, 2020) that allows for more clearer articulation. However, the pathophysiology of speech impairments in patients with ALS (i.e., motor neuron disease) is different to those in patients with OPC (i.e., tumor burden and fibrosis from RT). Understanding how behavioral compensations impact speech movements in this group will provide a better understanding of how to improve the quality of life of patients with OPC. Seven patients (mean age = 62.0 years) diagnosed with oropharyngeal cancer before RT and five patients with OPC and after completing RT (mean age = 59.2 years) were asked to repeat “Dad told stories today” in their habitual rate and loudness, slow rate, and increased loudness. Tongue movements were recorded using electromagnetic articulography. Duration, path distance, and average speed were obtained using Matlab algorithms. Separate mixed models with participants on the random statement will be used to evaluate the effect of Group (patients after DX, patients after RT) and Condition (habitual, loud, slow speech) on the dependent variables. Data has been collected from all participants and the analysis for habitual speech has been completed. Data processing and analysis of loud and slow speech is currently ongoing.

POSTER

Speaker

S **Sydney Coleman**

G - 10: Behavioral and Social Sciences (U) 4

11:00 AM – 1:00 PM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

A **Alissa Martens**

Lead Presenter | G - 10

B **Breeanna Castillo**

Lead Presenter | G - 10

B **Brenda Garavito**

Lead Presenter | G - 10

Brianna Frazier
Lead Presenter | G - 10

Maria-Elena Gil
Lead Presenter | G - 10

Nicole Leong
Lead Presenter | G - 10

Nirvana Encinas
Lead Presenter | G - 10

Sergio Olivas Coto
Lead Presenter | G - 10

Voices from the Delta: Cucapá Water Perceptions, Water Justice, and Binational Conflicts.

11:00 AM – 12:55 PM

UNDERGRADUATE

This work analyzes the perceptions, traditional knowledge, and current needs of the Cucapá Indigenous people regarding water, the Colorado River, and the binational water conflicts that affect their ancestral territory in the river delta south of Mexicali, Baja California. Through community interviews, participatory workshops, and an intercultural approach, the study gathers the living testimony of a community whose cultural identity, spirituality, and ways of life are deeply connected to the river. The diversion, pollution, and overexploitation of the Colorado River—resulting from agreements and decisions between Mexico and the United States—have drastically reduced its flow, impacting local ecosystems and limiting access to water for human consumption, fishing, and subsistence agriculture. The study reveals that the Cucapá community is undergoing a continuous process of water dispossession, exacerbated by the lack of official recognition of their territorial rights and their systematic exclusion from binational water governance mechanisms. In addition to documenting ecological and social impacts, the work highlights the importance of the river as a living and sacred being within the Cucapá worldview, which stands in stark contrast to technocratic approaches to water management. Finally, the study underscores the urgent need to establish a transboundary and intercultural model of water governance that not only ensures equitable access to water but also incorporates the voice, ancestral knowledge, and collective rights of Indigenous peoples as key actors in the protection of shared water resources.

POSTER

Speaker

Alissa Martens
Lead Presenter | G - 10

Examining Perspectives on using Digital Apps for Anxiety

11:00 AM – 12:55 PM

UNDERGRADUATE

Digital interventions, such as anxiety-focused apps, have emerged as alternatives for those unable to access conventional mental-health treatment. Although thousands of anxiety apps exist, research indicates that engagement is low. Little is known about individuals who may benefit from an anxiety app but have never downloaded one. Addressing this gap is critical for ensuring that anxiety apps reach all individuals who may benefit. In the current study, we investigated perspectives on what prevents people from using anxiety apps and how these perspectives relate to anxiety severity.

We recruited 314 undergraduate students (80% female; racially diverse sample). Participants completed the GAD-7 scale to assess anxiety symptoms and questions about their use of anxiety apps. A total of 248 participants reported they had never used an anxiety app. We excluded participants who indicated they did not feel anxious enough to need one, resulting in a final sample of 129 people who had never used an app but may benefit from one. We then asked these participants about their reasons for nonuse.

The most frequent reason for not using an anxiety app, reported by 95 participants, was, “I tend to lose interest or would forget to use the app”. To examine whether anxiety severity was associated with this perspective, we conducted an independent-sample t-test to compare mean anxiety scores between participants who endorsed this reason and those who did not. Participants who reported that they would lose interest or forget to use an anxiety app had significantly higher anxiety ($M = 10.31$) than those who did not select this reason ($M = 8.40$), ($t(156.41) = –2.45$, $p = .015$).

Results suggest that perceived difficulties with engagement may prevent individuals from initiating use of an anxiety app. Notably, this group may be among those who could benefit, as they reported higher levels of anxiety than those who did not share this concern. The findings highlight the need for thoughtfully designed apps that support engagement through personalization and interactive elements (e.g. E-coach).

POSTER

Speaker

Breeanna Castillo
Lead Presenter | G - 10

Imperial Valley Suicide Prevention

11:00 AM – 12:55 PM

UNDERGRADUATE

In Imperial Valley (IV), hospitalizations for youth behavioral health, such as suicide attempts, are higher than the state average (Little et al., 2025). IV ranks 56th out of 57 counties in the California Healthy Place index indicating less economic resources (Little et al., 2025). Emergency care, medication, lost productivity, and reduced quality of life associated with suicide attempts further exacerbate IV's poor economic outcomes. Nationally, rural youth suicide rates are 73.6% higher than urban populations and have risen 74% in the past 12 years (RHIhub, 2025). There is a lack of historic data in IV, it is known that Latinx youth suicide attempts across the state is rising(Little et al. 2025). In Imperial County the population is 85% Latinx and a mental health provider ratio two times less than the average in California (County Health Rankings & Roadmaps, 2025) it is vital this issue is explored.

To address this, an environmental scan was led that included reviewing existing research on rural suicide prevention, analyzing community-level interventions, engaging with key stakeholders, and examining relevant datasets on rural California. Insights from this process informed the creation of a preliminary logic model, grounded in social work approaches to community organizing and program development (Kellogg Foundation, 2004; Community Toolbox, 2025).

Challenges include sparse, broad literature that fails to address IV's Hispanic, Indigenous, immigrant, and LGBTQ youth, as well as enduring mental-health stigma. Solutions included cultural responsive strategy adapting community-based interventions such as PC Cares (Wexler et al., 2016) and inter-dialogue groups (Keeney et al., 2025). IV's strong community bonds in the form of a strong network of community based organizations (Little, et al., 2025).

A translational approach to suicide prevention in IV is needed to integrate community needs with data-drive solutions(Mata & Davis, 2012). Next steps are to refine the logic model with community partners to inform grant development.

POSTER

Speaker

Brenda Garavito

Lead Presenter | G - 10

Inclusive Education for Children and Adolescents with Autism

11:00 AM – 12:55 PM

UNDERGRADUATE

This project examines the experiences of autistic adolescents in K-8 classrooms focusing on the struggles that they may face in inclusive educational settings. The three main themes within this project are to highlight misconceptions within students with autism, academic/social struggles, and strategies to improve these challenges. By looking deeper into these themes, it can help improve social and academic obstacles for autistic students to improve their overall status in schools. In Imperial County, limited school funding can negatively impact its students compared to other counties with more resources. The goal is to raise awareness about inclusive education for children with autism, encouraging social and academic success. Studies show that many challenges that autistic students may face stem from the fact that they are misconceptualized by educators and peers. For example, a 2024 study found that an educator's misunderstanding of an autistic student such as misinterpreting behaviors which may lead to missed academic opportunities, demonstrates the issue of educational misconceptions. Along with misconceptions, issues such as funding may also have a lasting impact on the support that the students need. Research indicates that schools cannot provide the sufficient amount of funding to provide support for autistic students. As a result, these challenges can lead to lower academic success, increased stress, and students feeling singled out in the classroom. Inclusive strategies such as classroom support can improve academic and social results, and create several more beneficial opportunities. Inclusive education may boost support for students on the spectrum, which in turn also lowers stress levels. By understanding and implementing better ways to include inclusivity, it will help to provide that support that is needed by autistic students.

POSTER

Speaker

Brianna Frazier

Lead Presenter | G - 10

Beyond Barriers: Culture-Specific Beliefs and Cancer Care at the U.S.-Mexico Border

11:00 AM – 12:55 PM

UNDERGRADUATE

Cancer is the leading cause of death among US Hispanics who have a higher rate of getting and dying from some types of cancer than other groups. Among factors cited as contributing to these disparities are culture-specific practices including use of alternative treatments rather than biomedical care. This may be particularly relevant at the US-Mexico border where structural barriers to healthcare in the U.S. combines with access to alternatives across the border to impact treatment choices.

We discuss the use of alternative treatments among Mexican Americans with cancer in the Imperial Valley, CA, a rural border region. Our data is drawn from semi-structured interviews previously conducted with 19 participants that explored their experiences with cancer in this region, including their beliefs about different treatments ranging from biomedical to alternative. We coded the interview transcripts for major themes using NVivo software.

We present a summary of the types of alternative treatments participants used including natural (herbs) and supernatural (prayer). We examine participants' attitudes towards and use of these treatments, including how they evaluated different sources of information (doctors, family and friends, hearsay) and how they contrasted US vs. Mexican healthcare systems. We also examine how participants integrated different approaches. Instead of a barrier, participants who used alternative treatments prioritized biomedical treatments and their doctors' advice. They understood that different treatments had different uses and might conflict. Supernatural treatments such as prayer were viewed as compatible with biomedicine, e.g., God gives doctors the skills to cure. Nevertheless, participants noted that spiritual healers in Mexico may require clients to not engage in biomedical treatments, while US doctors often told them not to use alternatives.

Understanding culture-specific practices may help providers better communicate with and treat cancer patients, thereby reducing health disparities in this and similar regions.

POSTER

Speakers

M **Maria-Elena Gil**
Lead Presenter | G - 10

C **Cathrina Espinoza**
Co-Presenter | G - 10

Temporal and Regional Trends in Anti-Asian American Bias in a Changing Socio-Political Context

11:00 AM – 12:55 PM

UNDERGRADUATE

The American = White effect reflects a culturally learned cognitive bias associating being American with being White rather than Asian. Previous research has shown a linear decline of bias at the national level. Recent socio-political events, such as COVID-19, challenge whether this trend was disrupted or reversed. Additionally, there exists little research examining whether temporal fluctuations vary across regional contexts. This study aimed to determine whether implicit and explicit American = White biases continued to decline or not between 2015 and 2024. We tested whether these temporal fluctuations varied between states or counties. Data was collected through Project Implicit from 2015 to 2024. The Implicit Association Test involved promptly categorizing American and foreign symbols along with Asian and White faces. Explicit association of Asian and European Americans with the concept "American" was measured using a 7-point Likert scale. Multilevel analyses of temporal trends were performed for all states and 271 counties. We first determined whether implicit and explicit biases followed linear and quadratic patterns over time. We ran models including random slopes to test for differences in temporal patterns between regions. State-level analyses showed significant linear downward trends in explicit biases only, but also significant curvilinear trends across both levels. Curvilinear trends in implicit and explicit biases varied across states. At the county level, both implicit and explicit biases exhibited downward linear trends and positive curvilinear trends. Linear and curvilinear variations varied across counties at both levels. The present research showed that, over the course of the last decade, the American = White bias did not continue to decline. This might suggest that recent socio-political events can disrupt trends toward more inclusive cognitive responses. This work documents that temporal fluctuations in anti-Asian biases are not uniform across regions. Future research should identify mechanisms underlying regional variations.

POSTER

Speakers

N **Nicole Leong**
Lead Presenter | G - 10

G **Grace Cho**
Co-Presenter | G - 10

Climate Change at the Borderlands: Cucapá Voices on Heat, Water, and Health

11:00 AM – 12:55 PM

UNDERGRADUATE

Understanding how climate change is perceived at the local level is essential for developing adaptation strategies that are culturally relevant and rooted in place. This study focuses on the Cucapá community of Mexicali, Mexico—an Indigenous people whose ancestral identity and livelihoods are tied to the Colorado River and its seasonal cycles. Through a structured survey, we explored how community members perceive the impacts of environmental change on their health, work, and cultural practices. Respondents reported a strong awareness of rising temperatures, prolonged drought, and shifting rainfall patterns. These changes are seen as major stressors that affect fishing, farming, water access, and community well-being. Traditional ecological knowledge—especially related to planting, harvesting, and seasonal celebrations—is being disrupted by these climate shifts. Participants expressed concern about the long-term viability of their cultural practices under worsening environmental conditions. Many called for education and resources to support local adaptation, including community workshops and intergenerational knowledge exchange. This study reflects the importance of listening to Indigenous voices in climate discourse and highlights how the Cucapá community is actively interpreting and responding to ecological change. By grounding climate policy and health planning in the lived experiences of riverine communities, we can move toward more just, resilient, and culturally informed solutions.

POSTER

Speaker

N **Nirvana Encinas**
Lead Presenter | G - 10

How does the lack of public bathroom access in Imperial County affect our daily lives?

11:00 AM – 12:55 PM

UNDERGRADUATE

When my brother and I went to a park near our house in Calexico to play volleyball, we soon found out that the park didn't have a toilet, and we needed to go urgently to the toilet. Thinking fast, I called my father and he picked us up and drove us home. This is one example of many about the importance of public sanitization places in our cities and how the lack of them can affect our daily lives. The lack of sufficient access to public restrooms in Imperial County may be an impediment to socializing and exercising in public spaces. By making a community survey, we want to acknowledge the implications of the lack of public restroom access in the daily lives of the people that use the parks, public buildings and work in the community, as well as gathering information of the quality of the restrooms already present in Imperial County.

The survey is being made online with Qualtrics. The survey aims for 300 people in the community. The survey will be presented to the public by doing tabling in community places, like downtown and parks, in order to interact with them, explain what the research is about, and get them to understand the situation of the county regarding public restrooms. Access to bathrooms in public spaces allow a better quality of life by letting people enjoy their daily activities in the cities and parks without worrying about where the nearest bathroom is in the places people go. By doing this community survey, we aim to understand the situation of accessing bathrooms in Imperial County from the community perspective.

POSTER

Speaker

S **Sergio Olivas Coto**
Lead Presenter | G - 10

G - 11: Physical and Mathematical Sciences (G) 1

11:00 AM – 1:00 PM | Location: Montezuma Hall

GRADUATE

POSTER

Speakers

A **Angel Cabral**
Lead Presenter | G - 11

A **Ava Lessing**

L **Laura Hu**
Lead Presenter | G - 11

O **Olympe Genty**
Lead Presenter | G - 11

P **Paola Sabel**
Lead Presenter | G - 11

T **Tatyana D'Alessandro**
Lead Presenter | G - 11

T **Timmy Liang**
Lead Presenter | G - 11

Tytan Le Nguyen
Lead Presenter | G - 11

Modeling Dengue Transmission Dynamics in Spatiotemporal Heterogeneous Climate Conditions

11:00 AM – 12:55 PM

MASTER'S

Dengue fever, a vector-borne viral disease transmitted by the Aedes aegypti mosquito, remains a global public health issue, putting about 4 billion people at risk. It can cause severe illness, hospitalization, and in rare cases, death. The mosquito life cycle and dengue transmission are highly sensitive to climate, especially environmental temperature. In this study, we develop a deterministic SEI-SEIR-type partial differential equation model that accounts for spatiotemporal heterogeneity in climate conditions. The model is parameterized using experimental data from laboratory-tested mosquitoes and climate data from Nepal. We use our model to predict the reproduction number, which helps determine the climate conditions under which an outbreak of the disease occurs in Nepal.

POSTER

Speaker

Angel Cabral
Lead Presenter | G - 11

Linking Climate and Physical Landscape Characteristics to Dominant Hydrologic Processes

11:00 AM – 12:55 PM

MASTER'S

Understanding how landscape characteristics control hydrologic processes is critical for predicting water movement across diverse environments and global scales. While previous studies have examined this relationship using landscape metrics calculated at watershed basin outlet points, the effect of landscape variability within the watershed drainage area remains unexamined. It is essential to consider the entire watershed, as processes differ between landscape positions, and different parts of the watershed contribute differently to surface and subsurface flow pathways.

This study, therefore, analyzes 272 research watersheds distributed across all seven continents to determine how the spatial distribution of landscape characteristics, including topography, soils, geology, and land cover, controls dominant hydrologic processes. Using a global hydrologic process database provided by McMillan et al., 2025, watershed boundaries are delineated using high-resolution DEMs and Python code. Landscape attributes are overlaid and calculated within the watershed boundaries using summary statistics in ArcGIS, resulting in fractional cover classes for each characteristic. By comparing McMillan's (2022) runoff process taxonomy to the landscape characteristic fractional cover classes, we show how the distribution of hydrologic process classes is dependent on landscape characteristics. Our analysis reveals global-scale patterns in how landscape characteristics control hydrologic processes and evaluates those relationships for consistency with existing results.

Results from this study provide new insights into the patterns and drivers of hydrologic processes on larger scales and enable the exploration of these relationships in less-examined areas on Earth, including the Global South. Our work has the potential to improve the efficiency of hydrologic forecasting models through the selection of models that fully represent dominant processes and our understanding of how GIS analysis can be applied to large-scale hydrology and watershed science.

POSTER

Speaker

Ava Lessing

Modeling Climate Impacts on Avian Influenza Evolution and Consequent Epidemic Risk in Waterfowl

11:00 AM – 12:55 PM

MASTER'S

Climate, especially environmental temperature, plays a central role in shaping the transmission, evolution, and persistence of highly pathogenic avian influenza viruses in aquatic birds, thereby driving epidemics in domestic birds. To quantify these effects, we integrate two complementary modeling approaches: a multi-strain SIRV deterministic model describing the co-circulation of high- and low-pathogenic avian influenza in wild aquatic birds, and a probabilistic model assessing the risk of endemic establishment in domestic birds following environmental exposure. Analytical and numerical results from the deterministic model show that warmer temperatures markedly accelerate viral infectivity loss, reducing environmental transmission. However, strains with weaker temperature sensitivity can retain infectiousness under warmer conditions. By incorporating these findings into the probabilistic framework, we demonstrate how introduction timing and strain-specific thermal responses govern the likelihood that a single exposure event in a shared water source can trigger persistent infection in domestic bird populations. Together, these results indicate that climate functions as a selective filter shaping both the transmission, evolution, and invasion potential of avian influenza across wild and domestic waterfowl systems.

POSTER

Speaker

Laura Hu
Lead Presenter | G - 11

Modeling Climate-Driven Risk of Mosquito-Borne Disease: District-Level Assessment of Dengue in Nepal

11:00 AM – 12:55 PM

MASTER'S

Dengue fever is a vector-borne viral disease primarily transmitted by Aedes aegypti mosquitoes. Because no widely available vaccine or curative treatment exists, accurate surveillance and early warning systems are critical for public health planning. Climate strongly shapes dengue transmission by influencing mosquito survival, breeding, and development. Nepal provides a valuable setting for dengue modeling due to its strong spatial heterogeneity: its 77 districts span a wide range of elevation and climate zones. In this study, we develop a hybrid probabilistic-mechanistic, data-driven model that enables us to estimate a practical, district-level risk of dengue infection. In our unique hybrid approach, risk is assessed using a Poisson process, while mosquito abundance is modeled using climate-dependent deterministic ODE systems driven by temperature and rainfall. We applied our model to districts of Nepal using data from January 2022 to December 2023. Estimated parameters fall within meaningful confidence intervals, and initial validation suggests adequate agreement between predicted and observed case counts. These findings indicate that a probabilistic, climate-informed modeling framework can support short-term dengue forecasting and district-level risk evaluation in Nepal, providing an evidence-based methodology for designing public health policies.

POSTER

Speaker

O

Olympe Genty

Lead Presenter | G - 11

The Role of Headwater Catchments in Downstream Flow Regimes

11:00 AM – 12:55 PM

MASTER'S

Headwater catchments are at risk of losing protections that benefit the health of entire watersheds and river networks due to a recent Supreme Court ruling which eliminated federal safeguards from isolated wetlands and ephemeral streams. With a limited number of stream gauges or models for headwaters, researchers must currently infer processes in headwaters based on analyses of downstream flow regimes. Our research addresses this gap by analyzing flow regimes of large-scale catchment datasets as well as headwater catchments to determine if it is possible to infer flow regimes of headwater catchments based on downstream flow metrics and to determine how flow regime characteristics aggregate downstream.

We will use hydrologic signatures, index values that describe streamflow properties, to capture the magnitude, timing, frequency, duration and rate of change of streamflow. For the largescale catchment analysis, we apply a suite of signatures to paired headwater and downstream gauges from the GAGES-II dataset, an open-source, large sample dataset containing streamflow and climatic data. In analyzing these signatures, we can determine how quickly flow regimes change based on distance between gauges and differences in watershed area. For headwater catchment analysis, we apply the same suite of signatures to streamflow and precipitation data from small, usually experimental, watersheds with active gauges in headwater tributaries that feed into a gauged river downstream. In analyzing these signatures, we can sufficiently characterize and compare upstream flow metrics to downstream ones – are they an average, are they amplified or dampened. Our results contribute to continental-scale understanding of hydrologic processes in headwater catchments, and the role of headwaters in providing downstream flow services.

POSTER

Speaker

P

Paola Sabel

Lead Presenter | G - 11

Growth mechanism of silver nanoparticles in the borohydride reduction of silver ions

11:00 AM – 12:55 PM

MASTER'S

Much attention has been brought to how silver nanoparticles can be used, as well as methods by which they can be synthesized. A widely-used method of synthesis involves reacting silver nitrate with sodium borohydride in the presence of sodium citrate, which acts as a capping agent to stabilize the nanoparticles. However, despite this method's wide-spread use, little has been documented about the initial stages of nanoparticle formation, nor for that matter, the subsequent steps. The lack of mechanistic information is surprising since such information would be useful in optimizing the chemical and physical properties of the nanoparticles. The goal of this project is to determine the mechanism.

Because the reaction occurs quickly--initial steps occur within milliseconds of reactant mixing--we have constructed a fast UV-visible absorption spectrometer, capable of rapidly mixing reagents in a cuvette and recording spectra on a millisecond timescale. To achieve this time resolution, careful optimizations to the apparatus were made by adjusting liquid level, adding "mixing baffles" to the inside of the cuvette, increasing stirrer and mixing speed, testing various pipette tips for injecting reagents, adjusting injection amount, and utilizing a laser/photodiode trigger to precisely define the start time of the reaction.

Initial results show that a peak at 240 nm grows from the moment of reaction initiation and then decays when a second peak at 400 nm, characteristic of semi-spherical silver nanoparticles, begins to grow. We observe an isosbestic point at 340 nm where the two peaks intersect as the nanoparticles grow, indicating the 240 nm peak belongs to an intermediate species. To help identify this species, we have performed TD-DFT computations of various species potentially in solution. The computations indicate that the most likely species belonging to the 240 nm peak is silver hydride. We conclude that the growth of the nanoparticles follows an unexpected and unconventional pathway in which silver ions form silver hydrides before then forming silver nanoparticles.

POSTER

Speaker

T

Tatyana D'Alessandro

Lead Presenter | G - 11

Modeling HIV Latent Infection during ART Treatment of Drugs Abusers

11:00 AM – 12:55 PM

MASTER'S

HIV is a global issue with approximately 40.8 million people living with HIV reported by UNAIDS in 2024. Of the total infected population, the WHO estimates that 23–39% are related to drug abuse. To control HIV infection, tremendous efforts are put into preventing the spread of HIV through antiretroviral therapy (ART); however, there is no cure for HIV, mainly due to the establishment of latent infection. In addition, conditioning of drugs of abuse, such as morphine, has been shown to increase the viral load and decrease the immune response, implying the potential effects of the drugs of abuse on latent infections. In this study, we develop a mathematical model to investigate the pharmacodynamics of antiretroviral therapy (ART) on HIV latent infection in drug abusers. The model is supported by experimental data from morphine-addicted macaques infected with Simian Immunodeficiency Virus (SIV). Our investigation highlights the altered ART pharmacodynamic effects in drug abusers due to the presence of drugs of abuse. Thus, the proper choice of drugs targeted to the conditioning of drug abuse is necessary to control the latent HIV infection in drug abusers.

POSTER

Speaker

Timmy Liang
Lead Presenter | G - 11

Electrocatalytic CO2 Reduction with CISS-Influenced Single Atom Catalysts

11:00 AM – 12:55 PM

MASTER'S

CO2 reduction reaction (CO2RR) is emerging as a cost-effective and efficient process to produce renewable fuels. In recent studies, single atom catalysts (SACs) have shown great promise due to the high density of active sites and their unique behavior compared to bulk metals, resulting in increased catalytic activity and maximized exposure of the active site. However, the poor stability of SACs and inconsistencies in synthesizing SACs create challenges. Furthermore, enhancing the properties of SACs through modification engineering is difficult because the coordination environment on the metal is sensitive. Minor changes in the environment can significantly alter SACs' stability, activity, efficiency. Finally, the competing hydrogen evolution reaction (HER) decreases the efficiency and selectivity of CO2RR. With the presence of chiral-induced spin selectivity (CISS) effect, the performance of SAC in CO2RR can be enhanced without directly modifying the catalyst. Herein, we enhance the performance of Ni SACs for CO2RR by adding L-/D-methionine chiral molecular layer. We demonstrate increased current densities and higher selectivity for the chiral-modified SACs compared to the achiral and unmodified analogues.

POSTER

Speaker

Tytan Le Nguyen
Lead Presenter | G - 11

G - 12: Physical and Mathematical Sciences (U/G) 1

11:00 AM – 1:00 PM | Location: Montezuma Hall

UNDERGRADUATE UNDERGRADUATE/GRADUATE

POSTER

Speakers

Alekhya Nagulapally

David Zhai
Lead Presenter | G - 12

Davina Ortiz Cobian
Lead Presenter | G - 12

Fernanda Portillo
Lead Presenter | G - 12

Kyle Arnold-Haro
Lead Presenter | G - 12

Nhu Dang
Lead Presenter | G - 12

Rafael Aguilera
Lead Presenter | G - 12

Stephanie Lambert
Lead Presenter | G - 12

UV-Exposure Effects on Time-Resolved Fluorescence of Crude Oil Samples

11:00 AM – 12:55 PM

MASTER'S

This study examines how 365 nm UV exposure influences the fluorescence behavior of crude oil samples using time-resolved fluorescence spectroscopy. Current work focuses on the Northwell crude oil dilution NW 10^{-6}, where emission data from 400–600 nm are collected across multiple UV-exposure intervals to track changes in fluorescence intensity and decay behavior. The study also establishes optimized sample-preparation methods, including screw-cap quartz cuvettes for stable long-duration UV measurements. Ongoing analysis will extract fluorescence lifetimes through multi-exponential decay fitting, and future work will expand testing to additional crude oil samples to compare their UV-induced photochemical responses.

POSTER

Speaker

A **Alekhya Nagulapally**

Exploring 1,2,3-Oxadiazine Ring Formation as a Strategy Towards the Total Synthesis of Nocuolin A

11:00 AM – 12:55 PM

UNDERGRADUATE

Nocuolin A is a cyanobacterial metabolite that has demonstrated potent antifouling and antiproliferative activities, distinguished by a novel 1,2,3-oxadiazine ring that is unique among known natural products. Despite growing biological interest in this compound, no total synthesis has been reported, and its N-N-O heterocyclic motif remains generally inaccessible with current synthetic methods. This project aims to explore and develop general strategies for 1,2,3-oxadiazine formation, with the long-term goal of applying it as a key step in a future total synthesis of Nocuolin A. The current focus is on reproducing literature reports of 1,2,3-oxadiazine formation and on designing simple aliphatic substrates that incorporate elements of the Nocuolin A scaffold to test the scope of these methods. In particular, this work examines a hypervalent iodine(III)–induced 6π-electrocyclization in fused aryl systems and a diazonium capture by a fulvene-like enol ester as potential N–N/N–O bond-forming methods. These model systems will be used to test whether reported conditions can be extended beyond aryl frameworks and to probe alternative N–N and N–O bond-forming approaches compatible with aliphatic side chains.

POSTER

Speaker

D **David Zhai**

Lead Presenter | G - 12

1,4-addition of a vinyl potassium trifluoroborate to a vinyl ketone substrate

11:00 AM – 12:55 PM

MASTER'S

While the addition of alkyl groups in conjugate additions to α, β-unsaturated aldehydes and ketones are frequently used in synthesis, the corresponding addition of vinyl groups are largely unexplored. Recently we have developed a route to functionalized alkenyltrifluoroborate salts. Here we describe our initial investigation of 1,4-vinylation of α, β-unsaturated aldehydes and ketones using functionalized alkenylboronic derivatives in this non-metal catalyzed reaction. Earlier, Suzuki and co-workers described the first 1,4-vinylation reactions. They found vinylboronic acids or esters are unreactive to α, β-unsaturated aldehydes and ketones. However, the in situ formation of the monofluoroboronic derivative, vinylB(OH)F, using trifluoroborane etherate or cyanuric fluoride with the vinylboronic acid or ester undergoes conjugation addition on reacting overnight. Unfortunately, the examples of unsaturated substrates and vinylboronic acids or esters were limited. In our preliminary investigation we convert the essentially insoluble potassium vinyltrifluoroborate salt into soluble tetrabutylammonium salt, 0.3M, via cation exchange using tetrabutylammonium bromide. Trimethylchlorosilane rapidly and selectively removes one fluorine to give the corresponding vinyldifluoroborane within 15 min. This borane reacts with α, β-unsaturated ketones to give conjugate addition product. Presence of small amounts of water forms the monofluoride boronic derivative reacts at a considerably slower rate as reported by Suzuki. Demonstrating the need to carry out these reactions under anhydrous conditions. The mechanism of this addition initiates with coordination of the Lewis acidic difluoroborane to the lone pair of the carbonyl oxygen, followed by rearrangement to a six-member transition state delivering the vinyl group to the β-vinyl carbon. We will present our efforts to optimize the reaction conditions and explore to range of functional group compatibility as well as examine the various types of α, β-unsaturated aldehydes and ketones in these 1,4-vinylation reactions.

POSTER

Speakers

D **Davina Ortiz Cobian**

Lead Presenter | G - 12

F **Francisco Serrano Sotelo**

Co-Presenter | G - 12

Evaluating and Improving Wet Bulb Globe Temperature Forecast Accuracy in the Imperial Valley

11:00 AM – 12:55 PM

MASTER'S

Southern California's Imperial Valley is an agricultural region characterized by a hot and arid climate in a desert landscape. Despite these conditions, the agriculture industry is one of the largest employment sectors in the region, making safeguarding farmworker health essential and a primary objective. Heat stress forecasts support this goal by helping identify when conditions may be too hot to work safely. The Wet Bulb Globe Temperature (WBGT) is a widely used heat stress index that accounts for air temperature, humidity, wind speed and solar radiation. However, current WBGT forecasts tend to underestimate WBGT during extreme heat events and warming periods. To address this issue, this research aims to evaluate how well WBGT forecasts align with observed conditions across agricultural stations in the Imperial Valley and to compare the effectiveness of machine learning methods in improving forecast accuracy. 7-day WBGT forecasts from NOAA's National Blend of Models (NBM) were validated using hourly weather data from the four California Irrigation Management Information Systems (CIMIS) located across the Imperial Valley.

Results show that uncorrected NBM WBGT forecasts exhibit a systematic cool bias, particularly during high heat-stress conditions. The multi-station XGBoost model substantially improves forecast performance, reducing overall forecast error by approximately 67% and improving alignment with observed mid-afternoon WBGT values. Heat-hazard classification skill also improves after correction, with an increase in correctly identified unsafe heat-stress days, a 34% reduction in missed high-risk days, and a substantial decrease in false alarms. Overall, the results demonstrate the potential of multi-station machine-learning bias correction to improve WBGT forecast accuracy in extreme heat environments. Continued refinement of predictor relationships and further evaluation across seasons will help strengthen the robustness and applicability of these methods for heat-risk management in agricultural regions.

POSTER

Speaker

Fernanda Portillo

Lead Presenter | G - 12

Utilization of a Zwitterionic Capillary Coating for the Characterization of Virus-like Particles

11:00 AM – 12:55 PM

MASTER'S

Viruses, in their simplest form, are large protein structures that are excellent transporters of biochemical materials. Usually, viruses carry genetic information used to infect and replicate within host cells, however they may be effective in carrying other substances such as therapeutic drugs. This requires an understanding of how virus-like particles (VLPs) assemble, and the conditions under which they degrade.

Capillary electrophoresis has historically been used to identify properties of proteins, which can even be applicable to studying VLPs. Capillary isoelectric focusing (cIEF) is commonly used in industry and research laboratory settings to characterize and determine the isoelectric points of proteins. When working with these charged molecules, protein adsorption to the capillary surface is a large hurdle that is typically solved by expensive and irreproducible solutions. This project aims to utilize a zwitterionic lipid bilayer coating, DLPC, as a cheaper, alternative coating in cIEF separations of simple proteins and even larger protein structures like viruses.

After implementing this new system, the separation of viral subunits and VLPs from model proteins in their native states has been achieved. Subsequently, the approximate isoelectric points of these VLP products can be obtained as well. The results show DLPC can be an effective coating for cIEF separations; thus, adding to its versatility in capillary electrophoresis as a whole, while also serving as a cost-effective method to produce valuable data on the VLPs studied.

POSTER

Speaker

Kyle Arnold-Haro

Lead Presenter | G - 12

Ni-Doped Perovskite for Photocatalytic Benzylic C-H Amination

11:00 AM – 12:55 PM

DOCTORAL

Directly introducing aliphatic or aromatic amines into C(sp^3)–H bonds remain a significant challenge in organic synthesis. One major difficulty is that C(sp^3)–H activation is an oxidative process, whereas amines are generally more prone to oxidation than C–H bonds, making them difficult to use directly. Typically, protected amines are employed and then deprotected to realize amination, but this strategy limits the synthesis of tertiary amines, as protected secondary amines are often inactive in such reactions. Here we present a mild photocatalytic method that overcomes these limitations by utilizing Ni-doped perovskite CsPbBr3 nanocrystals (NCs) for benzylic C–H amination directly using unprotected aliphatic or aromatic amines. Perovskite enables highly selective C-H activation, while doped-Ni(II) readily captures benzylic radicals via oxidative addition. XPS studies successfully validate such oxidative addition step with a Ni(II)/Ni(III) configuration. Our methodology forges aromatic and aliphatic, cyclic and acyclic, as well as secondary and tertiary amines, and provides a powerful tool for the late-stage functionalization of bioactive compounds and drug derivatives.

POSTER

Speaker

Nhu Dang

Lead Presenter | G - 12

Backbone and Warhead Optimization of Carmaphycin Analogs for Antitrichomonal Therapy

11:00 AM – 12:55 PM

MASTER'S

Abstract

Trichomonas vaginalis is an extracellular protozoan parasite responsible for trichomoniasis, a widespread sexually transmitted infection associated with adverse reproductive outcomes and increased susceptibility to co-infections. As a rapidly proliferating eukaryotic pathogen, T. vaginalis relies heavily on efficient protein turnover to maintain cellular homeostasis under fluctuating host-derived stresses. The parasite's 20S proteasome plays a central role in this process by mediating regulated proteolysis, making it a critical vulnerability that can be exploited for therapeutic intervention. Importantly, structural and sequence-level differences between parasite and human proteasomes provide opportunities for selective inhibition.

In this study, we describe a medicinal chemistry strategy designed to interrogate how peptide backbone architecture governs proteasome engagement in epoxyketone-based inhibitors. A conserved dipeptide core: L-Tryptophan (R2) L-Tyrosine (R1)—was maintained across all analogs to enable direct structure–activity comparisons, while systematic variation was introduced at the N-terminal backbone (R3). Four complementary backbone series were developed: a 3-methyl-1H-indene–glycine hybrid (T3), a CBz-protected glycine motif (T4), a flexible hexanoyl chain (T5), and a rigid 3-methyl-1H-indene carboxylate (T6). These backbones were selected to span a range of steric bulk, aromaticity, and conformational constraint, allowing assessment of how these features influence proteasome subsite recognition and inhibitor alignment.

The epoxyketone warhead—derived from Phe, Leu, or N-methyl Phe—was synthesized independently via Weinreb amide formation, Grignard addition, and dimethyl dioxirane(DMDO)-mediated epoxidation, with both epoxide stereochemistries evaluated. Together, this backbone-focused approach provides a structured framework for defining structure–selectivity relationships at the T. vaginalis 20S proteasome and supports the development of parasite-selective proteasome inhibitors with therapeutic potential.

POSTER

Speakers

R **Rafael Aguilera**
Lead Presenter | G - 12

D **David Macaraig**
Co-Presenter | G - 12

A path to N-arylimidazoles via Chan-Lam cross-coupling and high throughput experimentation

11:00 AM – 12:55 PM

DOCTORAL

N-Arylimidazoles are a versatile family of compounds that include many biologically active substances. The important C-N bonds in these compounds can be formed through a variety of different cross-coupling reactions. We looked at the Chan-Lam reaction which uses copper catalysts and organotrifluoroborates to couple amines. The Chan-Lam reaction is known for its capricious nature. To address this, we investigated high-throughput experimentation (HTE). Our HTE set-up dramatically increased the number of experiments we can typically perform in a single day from 4-5 to well over 100. This poster will highlight our experimental details for the Chan-Lam reaction.

POSTER

Speakers

S **Stephanie Lambert**
Lead Presenter | G - 12

D **Dakota Mcmichael**
Co-Presenter | G - 12

G - 13: Sage Project Partnerships (U/G) 1

11:00 AM – 1:00 PM | Location: Montezuma Hall

UNDERGRADUATE/GRADUATE

POSTER SAGE SPECIAL SESSION

Speakers

A **Abigail Wan**
Lead Presenter | G - 13

B **Bryan Gonzalez Esparza**
Lead Presenter | G - 13

C **Cristian Ayon Banales**
Lead Presenter | G - 13

J **Josefina Perales**
Lead Presenter | G - 13

M **Madison Cranford**
Lead Presenter | G - 13

Nicholas Foulk
Lead Presenter | G - 13

Sam Shultz
Lead Presenter | G - 13

The Right to Relief? Exploring Community Attitudes Toward Public Restroom Expansion in San Diego

11:00 AM – 12:55 PM

UNDERGRADUATE

San Diego faces significant sanitation inequities as limited public restroom access disproportionately affects restroom-reliant populations, especially people experiencing homelessness. Despite these impacts, local political discourse often treats sanitation as a homelessness issue rather than a public health priority, hindering policy change. These conditions have led to serious health and social consequences, including a 2017 hepatitis A outbreak that affected hundreds of residents.Motivated by observed disparities in sanitation access, this project examines community perspectives on expanding public restroom availability and tests the hypothesis that public opposition is overstated relative to actual community attitudes.

Using concept mapping, a mixed-methods approach, we collected and analyzed community-generated data at public venues including Politifest. In Phase I, participants (N ≈ 250) contributed over 250 statements in response to the focal question: “What is one reason, for or against, having more and better public restrooms in San Diego?” In Phase II, we are sorting and rating these statements to identify areas of support and concern related to public restroom expansion.

Preliminary findings support our hypothesis. Participants highlighted human rights, dignity, hygiene, safety, economic benefits, and public health. While concerns included cost, misuse, and maintenance, many emphasized that sanitation policy should focus on cleanliness, upkeep, and long-term sustainability alongside expansion. Early analysis suggests opposition may represent a vocal minority rather than broader community views.

These findings demonstrate the importance of community-engaged research in guiding public health advocacy. Future phases will refine themes and support targeted strategies to advance sanitation justice in San Diego, including collaboration with local government to expand access to clean, safe, and well-maintained public restrooms. From a public health perspective, the results highlight the role of accessible sanitation infrastructure in protecting community heal

POSTER SAGE SPECIAL SESSION

Speakers

Abigail Wan
Lead Presenter | G - 13

Isamira Slewa
Co-Presenter | G - 13

A National City Community Needs Assessment on Earthquake Preparedness

11:00 AM – 12:55 PM

UNDERGRADUATE

The resilience to natural disasters, such as earthquakes, in National City, the second-oldest city in San Diego, and surrounding cities, is threatened by a critical gap between disaster awareness and action. After having attended a presentation at San Diego State University on the potential impacts and consequences of a magnitude 6.9 earthquake occurring on the Rose Canyon Fault Zone, Emergency Manager Walter Amedee, with the city of National City, realized that as many as 5000 homes in National City could be damaged beyond repair in the event of an earthquake. This realization led to a community needs assessment report completed by San Diego State University undergraduate students in collaboration with the Sage Project and the City of National City. The report sought to understand earthquake preparedness and awareness of residents in cities where the estimated social vulnerability index was calculated to be high and medium. The results for the city of National City are summarized and presented here. For this study, the use of convenience sampling was employed. In National City, the most convenient methods used to collect survey data consisted of posting a flyer with a QR code to online social groups on Facebook called “National City Neighborhood Watch” and “I Love National City” for a period of three weeks. Additionally, Walter and National City council members helped with disseminating the project to their community networks. Data was collected from the dates of November 1 through November 20, 2025. A total of 43 individuals from National City responded to the survey. Initial findings reveal that 98% of participants have experienced an earthquake before. Additionally, findings reveal that 79% of residents identify the existence of a fault but misidentify the San Andreas Fault with the local Rose Canyon Fault. In summary, this National City sample of 43 respondents provides preliminary data for an upcoming study next semester. The future project will involve 300 participants from across multiple cities in San Diego and will be presented in the near future.

POSTER SAGE SPECIAL SESSION

Speaker

Bryan Gonzalez Esparza
Lead Presenter | G - 13

Presentation Withdrawn

11:00 AM – 12:55 PM

MASTER'S

POSTER SAGE SPECIAL SESSION

Speaker

Presenter Withdrawn

Trauma Disruptions and Revolving Doors: The Associations of Trauma with Length of Shelter Stays

11:00 AM – 12:55 PM

MASTER'S

Emergency and interim shelters in the United States are increasingly marked by short lengths of stay and revolving-door patterns in which adults cycle between shelters, streets, jails, and hospitals. These short stays and negative exits, abandonment, rule violations, incarceration, or returns to unsheltered homelessness, signal that current models fail to address underlying clinical needs. Guided by Trauma-Informed Care (TIC) and Adverse Childhood Experiences (ACE) frameworks, this study examines whether trauma histories and mental health conditions independently predict shelter length of stay, exit type, and system churn among adults experiencing homelessness in a large Southern California Continuum of Care. Using a retrospective cohort design, the study analyzes de-identified client-level data from the regional Clarity HMIS for adults (18+) enrolled in emergency, bridge, and transitional shelters between 2020 and 2024. Outcomes include length of stay (continuous and categorized as <30, 30–89, and ≥90 days), exit type (positive vs. negative), and system churn (number and timing of repeat enrollments). Key predictors are trauma indicators, PTSD, depression, anxiety, serious mental illness, and substance use–related fields, with demographic and structural factors (e.g., age, race/ethnicity, disability, income, days homeless prior to entry) included as covariates. Analyses will progress from descriptive and bivariate statistics to multivariate models: linear regression and Cox proportional hazards for length of stay, logistic regression for exit type, and negative binomial and survival models for churn. It is hypothesized that trauma and mental health conditions will be associated with shorter stays, higher odds of negative exits, and increased churn, even after adjustment. Findings will inform trauma-informed shelter practice and more efficient allocation of behavioral health resources.

POSTER SAGE SPECIAL SESSION

Speaker

Cristian Ayon Banales

Lead Presenter | G - 13

Aging on the Margins: Intersections of Age, Homelessness, and Substance Use in San Diego County

11:00 AM – 12:55 PM

MASTER'S

Background. Homelessness among older adults is accelerating, yet age-related health disparities within community-based intervention settings remain poorly understood. This study examines how age intersects with health burden, substance use patterns, and treatment access among adults experiencing homelessness who access library-based services in San Diego County. Public libraries have emerged as stigma-free intervention sites, yet no research has examined whether younger and older adults using opioids and library services experience distinct health profiles or age-based treatment barriers.

Methods. Guided by the life course and intersectionality frameworks, cross-sectional analysis of the Bupe by the Book (R21DA056805 Urada) baseline survey data (N=151) compared adults aged 18-49 (n=116) with older adults aged 50+ (n=35) across domains, including health burdens, substance use, homelessness characteristics, and treatment access. Based on prior literature, we hypothesized that older adults would exhibit greater health burden and lower treatment access, while younger adults would exhibit higher rates of stimulant and polysubstance use. Polysubstance stimulant use, however, was common across all age groups.

Analysis. Bivariate statistical analysis (independent-samples t-tests, chi-square tests, and Fisher's exact tests), and multivariate regression models examined age-related differences in health burden, substance use, and access to medications for opioid use disorder (MOUD).

Results. Younger adults reported significantly more days of depression and anxiety than older adults (M=23.1 vs. M=13.8, p=0.027), suggesting acute psychological trauma associated with early-onset homelessness. Substance use patterns were similar across age groups, with no significant differences in opioid use (p=0.455), stimulant use (p=0.194), or polysubstance use (p=0.823), challenging age-based typologies. Older adults experienced homelessness significantly later in life than younger adults (M=37.1 vs. M=26.2 years, p=0.003), supporting distinct life-course pathways characterized by early-on

POSTER SAGE SPECIAL SESSION

Speaker

Josefina Perales

Lead Presenter | G - 13

The City of National City Hazards Preparedness and Mitigation Plan

11:00 AM – 12:55 PM

MASTER'S

National City faces growing exposure to climate-driven hazards, particularly flooding, earthquakes, and structure fires, while also experiencing some of the highest social and environmental vulnerability levels in San Diego County. This poster presents a graduate-led Hazard Preparedness and Mitigation Plan developed through a partnership between SDSU's Sage Project and the City of National City. Leveraging tools such as FEMA's National Risk Index and CalEnviroScreen, this project identifies where hazard risks intersect most sharply with low-income renters, seniors, and linguistically isolated households. Key recommendations include seismic retrofitting incentives, green stormwater infrastructure, multilingual emergency communication, and resident-led outreach models that build local preparedness capacity. Visitors will gain insights into how equity-centered planning, community engagement, and infrastructure investment can work together to strengthen resilience and safety for communities under threat.

POSTER SAGE SPECIAL SESSION

Speaker

Madison Cranford

Lead Presenter | G - 13

The National City Earthquake Safety & Outreach Initiative

11:00 AM – 12:55 PM

MASTER'S

The National City Earthquake Safety & Outreach Initiative aims to provide local government officials with a variety of possible policy options to increase resident use of available seismic retrofitting resources. It contains suggestions for public outreach, funding solutions, and collaborating with community stakeholders. One of the primary goals of these policies was to help connect residents with necessary resources while keeping costs to the city government feasible. Created in collaboration with the SDSU Sage Project and the National City government, this program was developed from student-made policy proposals for helping National City residents make use of existing seismic retrofitting grants. A majority of the policies created were based on initiatives present in other cities, as well as several unique approaches to providing resources to residents.

Starting in 2024, homeowners in the city of National City became qualified to apply for the state-funded Earthquake Brace & Bolt Grant Program. This program provides $3,000 - $7,000 to eligible applicants towards brace and bolt retrofitting on single-family homes. Brace and bolting is a fairly quick and low-cost form of retrofitting in which a home is more securely mounted to its foundation. It can have an incredibly large impact on the security of the home and even prevent an older home from sliding off of its foundation completely. The Brace & Bolt Program will reimburse homeowners for having this renovation done either by themselves or by state-approved contractors.

Many of the policies present in this presentation focus on informing residents of this program and giving them the tools necessary to have the renovations completed. This includes raising general earthquake safety awareness, providing multi-lingual resources for community members, and connecting with local contractors and non-profit organizations to promote the program. The result is a multi-faceted approach to earthquake safety wherein the city can pick and choose which aspects to adopt based on their available resources.

POSTER SAGE SPECIAL SESSION

Speaker

Nicholas Foulk

Lead Presenter | G - 13

No Student Left Behind: a Case Study on Roadway Safety for Mid-City Students

11:00 AM – 12:55 PM

MASTER'S

This study evaluates roadway safety risks for students using active transportation in Mid-City San Diego through a spatial analysis of traffic collisions, school locations, and neighborhood demographics. Guided by Vision Zero and Safe Routes to School principles, the research identifies where targeted policy and infrastructure interventions are most urgently needed. Collision data from the California Highway Patrol's Statewide Integrated Traffic Records System from 2018–2022 were combined with demographic data from the American Community Survey and the Mid-City Atlas. A 0.2-mile buffer was applied around schools to capture collision activity relevant to student commutes. A Mobility Danger Score was developed using weighted counts of pedestrian injuries and deaths, bicyclist injuries, and total collisions to compare risk across schools. Results reveal significant disparities in roadway safety, with schools near high-speed arterial corridors such as University Avenue and El Cajon Boulevard consistently ranking highest. Hoover High School and Edison Elementary emerged as notable outliers. Neighborhood-level per capita analysis further shows that City Heights and Eastern Area experience disproportionately high rates of collisions and pedestrian and bicyclist injuries, coinciding with lower median household incomes and higher shares of non-white residents. Disaggregated pedestrian and bicyclist analyses demonstrate that safety risks vary by location, highlighting the limitations of uniform policy solutions. The findings suggest a strong link between historically under-resourced communities and elevated exposure to roadway hazards for students. The study concludes that an equity-focused, multi-pronged approach, combining Safe Routes to School programs with targeted infrastructure improvements such as road diets, bicycle facilities, and speed enforcement, offers the greatest potential to improve student safety. This research provides a data-driven framework for prioritizing limited transportation safety funding to maximize public health and social equity outcomes.

POSTER SAGE SPECIAL SESSION

Speaker

Sam Shultz

Lead Presenter | G - 13

G - 2: Humanities, History, Literature, & Philosophy (U/G) 1

11:00 AM – 1:00 PM | Location: Montezuma Hall

UNDERGRADUATE/GRADUATE

POSTER

Speakers

Anahi Martinez

Lead Presenter | G - 2

Andrew Wickman

Cordelia Sonnenschein

Lead Presenter | G - 2

Giancarlo Zazueta

Lead Presenter | G - 2

Haley McGuckin
Lead Presenter | G - 2

Isabella Torcat
Lead Presenter | G - 2

Victor Lopez
Lead Presenter | G - 2

Zelem Tuguldur
Lead Presenter | G - 2

Processing Tu'un Savi from Childhood to Adulthood: Language Maintenance, Migration, and Identity

11:00 AM – 12:55 PM

MASTER'S

Drawing from qualitative research and field experience in Nieves, Oaxaca, and other regions of Oaxaca, this research explores how Tu'un Savi is learned, processed, and used in early life. In addition, I will be looking into how changing linguistic ecologies shape speakers' long-term relationships to the language. Rather than framing language loss as an individual cognitive failure, this research will focus on how its decline can be attributed from within broader sociocultural structures. This includes language ideologies, educational practices, migration patterns, and shifting notions of identity, belonging, and legitimacy.

POSTER

Speaker

Anahi Martinez
Lead Presenter | G - 2

The Importance of Age in United States Constitutions, 1776-1787

11:00 AM – 12:55 PM

UNDERGRADUATE

As we approach the 250th anniversary of the Declaration of Independence and the establishment of the United States as a nation, it is extremely important for all of us to reflect on the documents the founding fathers created in order for the United States to prosper. The most valuable and influential document created in the United States is the Constitution of 1787. Within the Constitution of 1787, the founding fathers had very specific guidelines for future generations to follow in order preserve the newly founded nation. Looking back at some of these guidelines and requirements, we can see how this period was shaped by discrimination of all different forms such as slavery, the lack of women's rights, and the hostility shown towards Native Americans. Today, we rightfully spend a lot of time discussing how discrimination impacted the lives of these people, however there is another form of discrimination that is not heavily discussed. This discrimination comes in the form of age requirements for the Lower Legislative, Upper Legislative, and Executive position. The Constitution of 1787 did not allow select groups of people to serve in the government based on their age. The age requirements stated are twenty five for the lower legislative, thirty for the upper legislative, and thirty five for the executive position. State constitutions leading up to the Constitution of 1787 provide some information about why these ages have been chosen, as well as the Constitutional Convention itself and a few documents written by Native American tribes. In order to better understand the reason behind the age requirements it is valuable to look at the documents that come before it, and the proceedings that occurred during the drafting process of the Constitution of 1787. It becomes interesting to see how these ages were agreed upon even if people did not have the opportunity to attain that position. Through this research we will form new connections about the numerical data presented in the Constitution, and why it is valuable to look into.

POSTER

Speaker

Andrew Wickman

Mourning Attire in the Borderlands: A Case Study from the La Mesa History Center

11:00 AM – 12:55 PM

MASTER'S

La Mesa, founded by Anglo-Americans in 1912, is a town east of San Diego proper. As a township in the Borderlands, it is situated within a complex existing web of cultural patrimony, as it went through several different phases of occupation, from indigenous to Spanish to Mexican, and finally to American jurisdiction. Although the people of La Mesa were entering a new landscape at this time, with access to certain supply lines limited, they were still participating in national conversations surrounding dress, as seen through syndicated newspapers, as well as the garments themselves. Mourning dress can be a particularly fruitful avenue of research as it relates to this topic, since there are often set rules of attire that are dictated by published standards as it relates to etiquette. One such mourning object, housed at the La Mesa History Center and dating from 1912-1916, tells a history of Anglo-American women in the Borderlands and their relationship with national dialogues. Through the story of one dress and its owners, this project explores three primary lines of inquiry: the ways in which dress interacted with the identity formation of Anglo women in the Borderlands in the late nineteenth and early twentieth centuries; how the newly developed Anglo-American community of San Diego fit into national conversations surrounding conventional dress practices; and the potential barriers that women in San Diego faced in participating in national conventions of dress practice

POSTER

Speaker

Cordelia Sonnenschein
Lead Presenter | G - 2

SB 79 Housing Development Areas

11:00 AM – 12:55 PM

UNDERGRADUATE

California passed Senate Bill 79 a few months ago. SB 79 is a bill designed to increase housing stock by overhauling previous legislation and allowing qualifying properties to build higher-density housing depending on how close they are to a major transit stop. Qualifying major transit stops are heavy rail, such as major trains and metro lines, and light rail, such as Bus Rapid Transit (BRT) and trolley lines. Many cities are experiencing a housing affordability crisis, and San Diego is among the biggest leaders. This bill is designed not only to create more housing stock but also to build it near major transit stops to reduce car dependency in California's biggest metropolitan regions. For my final project, I want to determine the question, which parcels would most benefit from increased density housing under SB 79? I have chosen to analyze the communities of College Area, Mid-City, and North Park due to rising rents for residents and students of San Diego State University.

POSTER

Speaker

Giancarlo Zazueta

Lead Presenter | G - 2

Early LGBTQ+ Visibility on Broadcast Television

11:00 AM – 12:55 PM

UNDERGRADUATE

During the late 1990s to early 2000s, many LGBTQ+ representations on broadcast television faced censorship restrictions due to negative audience reactions. This led to corporate sponsors removing their funding out of fear that being involved with these shows would harm their potential profits. I conducted archival research at the Lambda Archives of San Diego, in addition to a small-scale literature review, which formed the basis of this project's case study analysis of Ellen and Will & Grace. These two shows marked the first time a lesbian and gay character had led a broadcast television show in the United States. By focusing on these two sitcoms released during this time period, the reactions of their respective networks, ABC and NBC, to calls for boycotts highlight how queer content is still heavily restricted by corporations. Public outrage over the inclusion of queer characters on broadcast television has reinforced the barriers to authentic representation and limited the diversity of the communities portrayed on screen. By drawing connections to changes in the diversity of LGBTQ+ representations in the present day, this project argues that censorship is effective in reducing representation.

POSTER

Speaker

Haley McGuckin

Lead Presenter | G - 2

The Forgotten First Amendment-The Apportionment Amendment

11:00 AM – 12:55 PM

UNDERGRADUATE

Over the course of this research project, I investigated the failure of the Apportionment Amendment, a proposed First Amendment to the U.S. Constitution introduced in 1789. The goal of the amendment was to establish a fixed formula for assigning seats in the House of Representatives based on population after each census. While it passed Congress and received broad support in theory, it ultimately failed to be ratified by enough states. This project asks why something that seemed widely supported never succeeded.

My research breaks this question into four main categories: national unity, capital placement, taxation, and state boundaries. These themes reflect the most common reasons why states and political leaders supported the amendment. However, while they all supported it, they did so for very different and often conflicting reasons. To support my findings, I used a range of primary sources including legislative acts, newspaper articles, personal letters, and Treasury reports from the late 1780s and early 1790s.

Each source helped show that the idea of apportionment was not just about fair representation. It was also tied to larger political and regional interests. Some states viewed it as a way to protect their influence. Others tied it to bargaining over the location of the national capital. Many were concerned about its effects on taxation. In the end, these differences made it impossible to reach a unified agreement, and the amendment failed.

This project shows that even when a reform is popular in principle, it can still fall apart when different groups support it for different reasons. The failure of the Apportionment Amendment reveals how divided the early United States was and how difficult it was to build long-term consensus in the early years of the Constitution.

POSTER

Speaker

Isabella Torcat

Lead Presenter | G - 2

Cartolandia: Can Archaeology Provide a New Hope to Displaced Communities?

11:00 AM – 12:55 PM

MASTER'S

Cartolandia – now also known as Nueva Esperanza – is a border community in Tijuana, Mexico, that has experienced growth, displacement, and relocation since the 1950s. Archaeological approaches such as site formation theory, urban archaeology, and materiality can be used to understand and map the decentralized processes through which impoverished communities such as Cartolandia establish, develop, and change settlements over time. Remote sensing and geographic information systems (GIS) are important tools that archaeologists and urban geographers use to visualize and map spatial and temporal patterns of urban growth. These methods, however, need to be contextualized with ethnographic and other qualitative research methods so that analyses can also be relevant tools to advocate for better housing policies. This is especially true for Nueva Esperanza and people experiencing houselessness along the US-Mexico border. Furthermore, as the Trump administration carries out its unprecedented volume of apprehension and deportation enforcement, recent reporting has shown that newly deported people are making a home in this already dense, unplanned community. Given the focus of anthropological archaeology on understanding and contextualizing the human experience over the long-term, it is important that this research will gather together local knowledge and spatial data to both improve our general understanding of the social, spatial, and temporal dynamics of decentralized urban growth, and our capacity to advocate – through research – for the people of Cartolandia and other similar populations.

POSTER

Speaker

V **Victor Lopez**
Lead Presenter | G - 2

After the Peak: Outcomes of Gen Z Social Movements in South Asia

11:00 AM – 12:55 PM

UNDERGRADUATE

As youth-led movements increase in the 2020s, many countries around the world have experienced significant political change, including shifts in leadership, public discourse, and policy agendas. However, there is less emphasis on what happens after social movements reach their peak, and on the challenges they face in converting momentum into tangible outcomes. This research examines what occurs after a social movement achieves its objectives; such as leadership change, policy adoption or repeal, and formal institutional reform. Using social movement studies as a theoretical framework, the project conducts comparative case studies of Gen-Z social movements in Nepal, Bangladesh, and Sri Lanka. It analyzes how movements emerge and mobilize, and how they seek to translate public demonstration into institutional and/or policy change. Ultimately, this research evaluates what allows movements to sustain and institutionalize their demand while fostering stability.

POSTER

Speaker

Z **Zelem Tuguldur**
Lead Presenter | G - 2

G - 3: Media in a Changing World (G)

11:00 AM – 1:00 PM | Location: Montezuma Hall

GRADUATE

MEDIA POSTER SPECIAL SESSION

Speakers

B **Belen Herrera**
Lead Presenter | G - 3

M **Mary Gowen**
Lead Presenter | G - 3

M **Mayerling Ovalles**
Lead Presenter | G - 3

N **Nicholas Nguyen**
Lead Presenter | G - 3

Can Personalized Advertisement Tell Who You Are?

11:00 AM – 12:55 PM

MASTER'S

In our daily lives, we encounter personalized advertisements while walking, driving, reading, or browsing online. These ads go beyond just simple advertisements; they can reflect and even shape aspects of our identity. As technology advances, so does advertising, making personalized advertising in today's media more efficient. Algorithms drive tailored advertisements for users and consumers online, enabling hyper-personalization. It makes one question whether personalized advertisements can tell who you are, so they can better target you. This literature review explores how personalized advertising conveys identity through the lens of Identity Signals theory, examining how tailored content enables users to signal group affiliations and reinforces identity signaling, and influences consumer behavior.

Additionally, it examines the intersection of self-concept and advertising. As time goes by, advancements in advertising will allow for a more efficient way to tailor to the right consumer. And despite the backlash from some who find personalized advertising unsettling or creepy, technological advancements will continue to pave the way for it.

MEDIA POSTER SPECIAL SESSION

Speaker

Belen Herrera

Lead Presenter | G - 3

Olfactory New Media Art and Epistemic Sovereignty: Sensing, Relation, and Resistance (2000–2025)

11:00 AM – 12:55 PM

MASTER'S

Over the past two decades, olfactory art in contemporary new media contexts has emerged as a critical arena for environmental sensing, multispecies relation, and sensory politics. This literature review analyzes a verified corpus consisting of twenty-six artworks and three curated exhibitions to identify three epistemic tendencies shaping the field: Sensing the Invisible, Relational Feedback, and Cognitive Resistance. Through biosensing, synthetic biology, AI-guided interaction, scent cartography, and community-sensed air monitoring, these works challenge the historical privileging of visual and linguistic modes of knowing by foregrounding embodied, atmospheric, intuitive, and microbial forms of perception. Drawing from sensory studies, media theory, cognitive science, decolonial epistemology, and philosophical work on power/knowledge and epistemic injustice, the project synthesizes existing scholarship to contextualize how olfactory practices intersect with environmental communication, multispecies entanglement, and embodied cognition. Based on this verified sample, the study positions olfactory new media art as a tool of infrastructural critique—and as a site of worldmaking that expands the possibilities for epistemic sovereignty in contemporary sensory cultures.

MEDIA POSTER SPECIAL SESSION

Speaker

Mary Gowen

Lead Presenter | G - 3

Con Artist: The Cultural Performance of Cosplay

11:00 AM – 12:55 PM

MASTER'S

Cosplay is often defined as simply the act of "dressing up", but it represents a phenomenon that synchronizes the fields of fandom studies, theatre arts, costume design, popular media, social sciences, gender studies, and cultural anthropology. Individuals who partake in cosplay knowingly construct a personal interpretation of established characters in order to navigate the liminal spaces of fandom and in-person conventions. Within these spaces they engage in repeated rituals both with non-cosplayers and fellow cosplayers. It's through these ritualized performances that they engage in communal fandom participation, establish sociocultural identity groups, and construct deeply personal performances that often allow for the transgression of traditional social norms.

The following literature review highlights cosplay's role as both an individualized performance and an inter-connected ritual performed within the unique space of the fandom convention. It draws from the field of feminist theory regarding the repetitive and active performances of gender that culminate in one's socially actionable identity. Fashion and marketing theory also intersect in how conventions act as a space for transgressive performance. Finally, cosplayer ritual is analyzed within the liminal space of comic con in order to best understand their cooperation with media and subversion of its capitalistic origins. The literature will be supplemented by in-person and online fieldwork conducted at sites of the cosplayer community. These include San Diego Comic Con, Los Angeles Comic Con, DragonCon, and more.

MEDIA POSTER SPECIAL SESSION

Speaker

Nicholas Nguyen

Lead Presenter | G - 3

Virtual Reality in Multilingual Education: A Path to Global Awareness and Bias Reduction

11:00 AM – 12:55 PM

MASTER'S

In an increasingly interconnected world, academic institutions must foster global awareness and critical thinking to prepare students for multicultural societies. This presentation explores the potential of immersive technologies through virtual reality (VR) to challenge biases, which are particularly relevant to bilingual education and multicultural societies in the United States, and it deepens the dialogue on how tech-driven initiatives enhance global empathy and understanding. The project Journey Beyond Headlines used the VR documentary “Mano Tengo Fé,” based on a solo backpacking trip through Venezuela. By offering participants an immersive experience of the country’s culture, landscapes, and social narrative, the project seeks to challenge stereotypes perpetuated by negative media portrayals. Pre- and post-surveys were conducted to assess changes in participants’ global awareness, empathy, and biases towards the region and its people. The findings indicate that VR’s immersive quality supports a deeper sense of connection, which can shift participants’ perception and foster empathy. These results bring value to the integration of immersive technologies into education, particularly in multicultural classrooms, where fostering cultural competence and addressing biases is essential. The use of immersive technologies as pedagogical tools has the potential to engage students in meaningful learning experiences that promote equity and inclusion.

MEDIA POSTER SPECIAL SESSION

Speaker

M **Mayerling Ovalles**
Lead Presenter | G - 3

G - 4: Biological and Agricultural Sciences (G) 1

11:00 AM – 1:00 PM | Location: Montezuma Hall

GRADUATE

POSTER

Speakers

A **Ance Trapse**
Lead Presenter | G - 4

D **Darius Hyde**
Lead Presenter | G - 4

E **Esteban Emmanuel Mora**
Lead Presenter | G - 4

J **Jacob Pascua**
Lead Presenter | G - 4

M **Morgan Laskowski**
Lead Presenter | G - 4

S **Sara Wifall**
Lead Presenter | G - 4

S **Steffy Mathew**
Lead Presenter | G - 4

W **Wyman Chan**
Lead Presenter | G - 4

Effects of S – (1,2- dichlorovinyl)- L – cysteine (DCVC) exposure on mitochondrial respiration in B

11:00 AM – 12:55 PM

MASTER'S

Trichloroethylene (TCE) is a widely used industrial solvent and recognized environmental pollutant, present in spray adhesives, degreasers, brake cleaners, paint removers, and manufacturing phased-down refrigerants. It has remained persistent in the environment globally, causing a risk to human health. TCE can be metabolized into the reactive and toxic metabolite S-(1,2-dichlorovinyl)-L-cysteine (DCVC), which induces mitochondrial-mediated apoptosis in trophoblast cells, known to play a crucial role in the early stages of pregnancy and placental development. Mitochondrial metabolism plays a crucial role in trophoblast differentiation, and little is known about how DCVC exposure affects this process. The current study aims to investigate the effects of different environmentally relevant DCVC concentrations on inducing mitochondrial stress and disruptions to the fusion process, known as syncytialization, in BeWo syncytiotrophoblast cells. To assess the effects of DCVC on the BeWo cell line, we measured live-cell metabolic function using the Agilent Seahorse XF HS Mini Analyzer, conducting a Mito Stress Test assay. This test measures key parameters such as the oxygen consumption rate (OCR) of cells, allowing for real-time monitoring of plate-based live assays. Prior to the assay, BeWo cells were exposed to 10 and 20 µM DCVC for either 12-hour and 24-hour exposure periods. Following the exposure period, oxygen consumption rate (OCR), proton efflux rate (PER), extracellular acidification rate (ECAR), and seven other parameters were measured via the Seahorse XF Analyzer. A one-way ANOVA was conducted for the basal respiration results for the three trials to assess changes in mitochondrial activity. So far, preliminary data have shown no significant results identified in the DCVC-treated BeWo cells. DCVC remains a significant concern in both public health and environmental toxicology. Ongoing experiments will aim to further characterize its effects, including assessing mitochondrial membrane potential and fluorescence imaging to confirm syncytialization.

POSTER

Speaker

A

Ance Trapse

Lead Presenter | G - 4

Investigating the Role of IDH2 K112 in Catalysis

11:00 AM – 12:55 PM

MASTER'S

Isocitrate dehydrogenase 2 (IDH2) is a mitochondrial enzyme that catalyzes the conversion of isocitrate to α-ketoglutarate, a key step in cellular metabolism. Interest in IDH enzymes, particularly IDH1 and IDH2, has increased due to the discovery that gene amplification and point mutations within these enzymes can contribute to tumorigenesis. However, challenges in producing and purifying human IDH2 have limited understanding of its catalytic mechanism. Conservation of key residues across IDH enzymes suggests that evolutionary pressure has maintained essential catalytic features across species, even as these enzymes diverged in their cellular localization and physiological roles. One such conserved residue is a lysine (K72 in IDH1, K100 in bacterial IDH, and K112 in IDH2), previously implicated in catalysis through its role in hydride transfer mediated by its ionizable side chain. In bacterial IDH, K100 stabilizes the transition state and lowers the energy barrier of hydride transfer, suggesting a similar role for K112 in human IDH2. Here, I focus on elucidating the function of K112, whose role in IDH2 remains unknown. I hypothesize that K112 contributes to catalysis through inductive effects that stabilize transition states, similar to bacterial IDH. To test this, I generated four IDH2 variants at this position (K112M, K112Q, K112R, and K112N) using site-directed mutagenesis, substituting residues that differ in charge, polarity, and reactivity. The proteins were expressed, purified, and subjected to steady-state kinetic analysis to assess catalytic activity. Mutant enzymes displayed a marked reduction in activity compared to wild-type IDH2, with K112R retaining slight activity. These results suggest that K112's function depends on both its positive charge and structural context. To further probe these interactions, I plan to introduce additional mutations (e.g., histidine and tyrosine) to dissect how K112 mediates catalysis. Ultimately, this work aims to clarify IDH2's catalytic mechanism and contribute to understanding conserved enzymatic principles.

POSTER

Speaker

D

Darius Hyde

Lead Presenter | G - 4

Phage counter-defense through genome modification with 7-deazaguanines

11:00 AM – 12:55 PM

MASTER'S

It has been established that the insertion of 7-cyano-7-deazaguanine (preQ0), and other 7-deazaguanines, into the genomes of phages confers protection from host restriction endonucleases. In silico studies reveal that more than 180 bacterial and archaeal viruses encode the enzymatic pathways for biosynthesis of preQ0 and its incorporation in DNA; however, none of these viral enzymes has been biochemically characterized. To address this gap, I will investigate the predicted preQ0 insertase DpdA2 from the Vibrio phage nt-1, using a suite of bioanalytical methods. High throughput X-ray crystallography will be used to determine high-resolution structures of nt-1 DpdA2 in its apo, DNA-bound, and preQ0 bound forms to capture distinct catalytic intermediates. Complementary bioanalytical assays – including electrophoretic mobility shift assays, fluorescence anisotropy, and radiochemical enzyme activity assays – will be used to investigate DNA binding properties, substrate specificity and catalytic rates. Together, these studies can establish a mechanistic framework for preQ0 incorporation and reveal how phages deploy modified nucleobases as an anti-restriction strategy. Overall, this work will expand the understanding of phage-host evolutionary dynamics and uncover fundamental principles of enzyme-mediated DNA modification, potentially informing the development of novel biotechnological tools derived from these unique pathways.

POSTER

Speaker

E

Esteban Emmanuel Mora

Lead Presenter | G - 4

Citra 13.7% AA Hop Pellet α- and β-acids Analysis Using Reverse Phase HPLC

11:00 AM – 12:55 PM

MASTER'S

The compounds responsible for the characteristic bitterness in beer are the α-acids and β-acids found in the lupulin glands of hop cones. The purpose of this experiment is to analyze the nonvolatile bittering acids present in T-90 Citra 13.7% AA hop pellets using HPLC. Quantifying α- and β-acids provides essential baseline information about the chemical composition of the hops and provides a foundation for future studies on their flavor profiles and volatile aroma compounds. For the analysis of the α- and β-acids 2 g of the powdered citra hop material were extracted with 68 mL of methanol and 12 mL of distilled water (85:15 v/v). Chromatographic separation was performed using an Agilent 1290 Infinity II HPLC system. The results showed a clear separation between the α-acid and β-acid peaks on the chromatogram. The results indicate that their polarity determines the elution order of the α- and β-acids that passed through the nonpolar stationary phase. Polar compounds elute faster, while hydrophobic compounds elute slower. Understanding the chemical composition of α- and β-acids and the characteristics found in the pellet material helps to determine their effect on imparting bitterness in beer. Understanding the roles pellets play in imparting bitterness is vital to improving current brewing processes to create a desired flavor profile that aligns with traditional beer styles.

POSTER

Speakers

J **Jacob Pascua**
Lead Presenter | G - 4

N **Natalie Yu**
Co-Presenter | G - 4

Engineering bacterial contractile injection systems for targeted molecular delivery

11:00 AM – 12:55 PM

MASTER'S

Bacteria do not just communicate with their hosts; they use microscopic syringes called contractile injection systems (CIS) to deliver molecular messages into target cells. Extracellular CIS (eCIS) is a subset of CIS that operates outside the bacterial cell, enabling potent and highly specific interactions with other hosts. Metamorphosis-associated contractile structures (MACs), produced by Pseudoalteromonas luteoviolacea, represent a unique eCIS capable of injecting protein effectors directly into cells to trigger developmental transitions. Despite the potential of a biological delivery vehicle, the criteria determining how MACs load and transport cargo remain poorly understood. This research aims to define the minimal N-terminal sequence of the native effector, Mif1, required for its incorporation into the MAC complex. By generating a series of Mif1 truncations fused to the luminescent reporter NanoLuc, expressing these constructs in their native host, and quantifying delivery into target cells, I will identify the shortest functional loading tag. Determining these sequence requirements will broaden the range of cargos that can be engineered for MAC-mediated delivery and provide a generalizable framework for discovering novel eCIS effectors. Establishing these structural principles will advance fundamental understanding of eCIS biology and lay the groundwork for developing programmable bacterial nanomachines capable of targeted protein translocation across diverse cell types.

POSTER

Speaker

M **Morgan Laskowski**
Lead Presenter | G - 4

How Does Species Richness in Transplanting Affect Coastal Sage Scrub Restoration Success?

11:00 AM – 12:55 PM

MASTER'S

Restoration efforts can speed recovery of ecosystems after disturbances such as wildfires. In coastal sage scrubs, rapid re-establishment of native shrubs and shrub diversity may mitigate the spread of invasive annual grasses that can dominate communities. We investigated how planted shrub species richness affects transplant survival after fire. Seven years after the 2007 San Diego Witch Fire, 104 plots were planted with 1, 2, 4, or 8 native shrub species. We assessed survival 11 years later. There was no effect of richness on percent survival, but survival varied among species. Artemisia californica and Eriogonum fasciculatum had the highest survival and high recruitment, while only two of 800 Brickellia californica survived. Therefore, it may not be necessary to plant a wide variety of species to rapidly reestablish shrub cover, although species choice matters in enduring survival of transplants. If diversity is a goal, additional care may be needed for hard-to-establish species.

POSTER

Speaker

S **Sara Wifall**
Lead Presenter | G - 4

The role of cancer cell-derived TWEAK in promoting a cancer stem-like phenotype in ovarian cancer

11:00 AM – 12:55 PM

MASTER'S

Ovarian cancer is the most lethal gynecological cancer in the United States, with over 80% of patients relapsing after chemotherapy. Recurrent ovarian cancer may be due to cancer stem-like cells (CSCs) that are drug resistant and capable of long-term self-renewal and reestablishment of tumors. Previous studies in our lab suggest that TWEAK, a cytokine enriched in ovarian tumors, enhances CSC development and survival. Additionally, inhibiting TWEAK in combination with chemotherapy was shown to significantly prolong survival and remission in mouse models. The source of TWEAK in ovarian cancer is unknown, but in normal tissues it is primarily produced by myeloid cells. A recent pancreatic cancer study identified cancer cells as a novel source of TWEAK and preliminary data from our lab suggests that TWEAK protein expression in ovarian cancer cells is significantly increased (2-fold) following chemotherapy treatment. Therefore, we hypothesize that cancer cell-derived TWEAK is a unique driver of CSC phenotypes in ovarian cancer cells. To explore this hypothesis, we generated and validated shRNA knockdown of TWEAK in OVCAR8 and CAOV4 ovarian cancer cell lines at the gene and protein level. To assess TWEAK-mediated tumor formation, we sorted for CSCs and non-CSCs in shNeg and shTWEAK cells and intraperitoneally injected cells into a xenograft mouse model. We found significantly decreased tumor formation in non-CSC shTWEAK tumors compared to non-CSC shNeg tumors ($p<0.05$). Moreover, the calculated stem cell frequency was significantly reduced in the shTWEAK non-CSCs compared to the shNeg non-CSCs and shTWEAK CSCs ($p=0.0144$ and $p=0.0086$, respectively). This data suggests that stem cell frequency is dependent on TWEAK expression. Experiments are underway to assess spheroid formation ability, chemoresistance, and expression of stemness genes in the CSC and non-CSC shNeg and shTWEAK cells. By targeting factors like TWEAK that promote a CSC phenotype, we hope to identify alternative therapeutic strategies to inhibit CSC development and prevent relapse in ovarian cancer

POSTER

Speaker

S **Steffy Mathew**
Lead Presenter | G - 4

Phages Targeting Mycobacterium tuberculosis Across Physiological Niches

11:00 AM – 12:55 PM

MASTER'S

Humanity's deadliest foe isn't defined by force, but by its remarkable ability to survive. Tuberculosis remains the leading cause of death from a single infectious agent, claiming over 1.5 million lives each year, while another 1.8 billion people harbor latent infection. Treating Mycobacterium tuberculosis (Mtb), the pathogen responsible for tuberculosis, is challenging because of its ability to hide within our own macrophages and persist within tough extracellular biofilms. These protected niches highlight the need for new therapeutic approaches. Bacteriophages (phages), viruses that specifically infect bacteria, offer a promising alternative as self-replicating therapeutics, capable of accessing both intracellular and biofilm-protected Mtb. We isolated a panel of twelve diverse mycobacteriophages and characterized them based on their lytic killing activity. All phage treatments significantly reduced bacterial burden as measured by AUC over 48 h. Based on their ability to infect Mtb, phages Myc4 and Myc5 were selected for further characterization. Protein annotation revealed no sign of lysogeny-associated genes, suggesting that Myc4 follows a strictly lytic lifestyle, making it suitable for phage therapy. Subsequently, both phages were assessed under conditions simulating the distinct microenvironments of the granuloma. Confocal and 3D cross-sectional imaging confirmed that the phages were localized within endosomal compartments of murine macrophages (RAW264.7). Additionally, using a microfluidic lab-on-a-chip model designed to mimic the structural complexity of mycobacterial biofilms, higher phage doses (10^8) significantly disrupted biofilm formation within 24 hours, while lower phage doses (10^4) produced minimal effect. Together, these findings suggest phages can access the same intracellular and biofilm-protected reservoirs of Mtb. This offers insight into the rational design of therapeutic phages capable of synergizing with host immunity to achieve more effective and fulfilling the niche on the market that can effectively control Mtb infection.

POSTER

Speaker

W **Wyman Chan**
Lead Presenter | G - 4

G - 5: Biological and Agricultural Sciences (G) 2

11:00 AM – 1:00 PM | Location: Montezuma Hall

GRADUATE

POSTER

Speakers

B **Brittany Conley**
Lead Presenter | G - 5

E **Eva Bednard**
Lead Presenter | G - 5

J **Johann Tailor**
Lead Presenter | G - 5

M **Melanie Torres Ibarra**
Lead Presenter | G - 5

N **Natalia Contreras**
Lead Presenter | G - 5

Raymond Stanley
Lead Presenter | G - 5

Shoshana Lescht-Smith
Lead Presenter | G - 5

Sjana Carter
Lead Presenter | G - 5

Innovative Approaches to Investigate the role of IDH1 in Peroxisomal Lipid Metabolism

11:00 AM – 12:55 PM

DOCTORAL

Isocitrate dehydrogenase 1 (IDH1) is a cytosolic and peroxisomal enzyme essential for cellular metabolism. It catalyzes the oxidative decarboxylation of isocitrate to generate α-ketoglutarate (αKG) and NADPH. Peroxisomes carry out key metabolic activities, including fatty acid oxidation and detoxification of reactive oxygen species. Several lipid biosynthetic pathways within peroxisomes depend on αKG or NADPH, yet no established import mechanisms exist for these metabolites. This suggests that peroxisomal IDH1 is a major source of αKG and NADPH for supporting lipid biosynthesis, highlighting the need for new tools to probe IDH1 function within this organelle. IDH1 is targeted to peroxisomes through its native AKL tripeptide, recognized by the peroxisomal import receptor PEX5. Using computational prediction, we identified a higher-affinity targeting motif, SKL. Through site-directed mutagenesis, we engineered IDH1 variants bearing the enhanced SKL tag or lacking peroxisomal targeting entirely. These constructs allow us to direct IDH1 specifically to the peroxisome or restrict it to the cytosol. By fusing green fluorescent protein (GFP) to these IDH1 variants and expressing them in IDH1-deficient cells, we can visualize import efficiency alongside established peroxisomal markers and assess how altered targeting affects metabolic function. Preliminary liquid chromatography–mass spectrometry (LC-MS) analysis of cells lacking IDH1 activity reveals accumulation of phytanic acid, a substrate in the phytanoyl-CoA oxidation pathway. This buildup indicates that efficient breakdown of phytanic acid to pristanic acid requires peroxisomal IDH1-derived metabolites. These findings support a model in which IDH1 is a critical supplier of αKG and NADPH for peroxisomal lipid metabolism. The tools developed here enable precise control of IDH1 localization and provide a platform to examine how cytosolic-only versus peroxisomal-only IDH1 influences lipid metabolic pathways. This approach will advance our understanding of peroxisomal biosynthesis and the regulatory role of IDH1.

POSTER

Speaker

Brittany Conley
Lead Presenter | G - 5

Do different Melilotus removal strategies impact native plant performance via microbial effects?

11:00 AM – 12:55 PM

MASTER'S

Invasive species are one of the greatest threats to global biodiversity. When invasive species are introduced to an area outside of their native range, they might outcompete and eventually displace resident species. Exotic legumes are nitrogen-fixing that have a cooperative relationship with bacteria in their roots, which convert nitrogen from the air into a plant-usable form. While native nitrogen-fixing legumes are important for plant and soil health, exotic legumes can change the soil microorganisms in their invaded range, which may have negative effects on co-occurring native plant species. Melilotus albus is a particularly aggressive exotic legume which may alter soils in this way. Land managers have tried controlling M. albus using herbicide application, hand-pulling, and mowing removal methods. However, the indirect impacts of each of these practices on soils and native plants have not been documented. I propose a greenhouse study to determine how soil inoculations from currently invaded, never invaded, herbicide, hand-pulled, and mowed removal plots influence plant performance through microbe effects. I will 1) observe whether previously M. albus- invaded soil differs in microbial composition from uninvaded soils, 2) determine whether herbicide application, hand-pulling, or mowing removal methods change the microbial composition of previously M. albus- invaded soils, and 3) monitor and compare seedling performance for four representative native prairie species and M. albus grown in inoculated soils. This project may inform specific land management decisions that most effectively mitigate invasion while minimizing damage to co-occurring native species.

POSTER

Speaker

Eva Bednard
Lead Presenter | G - 5

Pyroptosis contributes to Ect1 cell damage and microenvironment change during T. vaginalis infection

11:00 AM – 12:55 PM

DOCTORAL

Trichomonas vaginalis (Tv) is a eukaryotic parasite that causes the most common sexually transmitted infection, trichomoniasis. Increased inflammation during Tv infection is predicted to drive comorbidities like cervical cancer, but the underlying inflammatory mechanism at play is unclear. Pyroptosis is a form of cell death that releases proinflammatory cytokines. It involves caspase-1 cleavage of Interleukin-1β (IL-1β) cytokine and gasdermin D (GSDMD), which generates a gasdermin N-terminal fragment (GSDMD-NT). GSDMD-NT oligomerization forms pores on the cell membrane, prompting cytokine release and cellular rupture. We hypothesize that Tv damages ectocervical epithelial cells (Ect1) via GSDMD-mediated pyroptosis. To test whether Tv induces GSDMD-mediated pyroptosis, we generated Ect1 GSDMD-knockout (GSDMD KO) cells and measured cytolysis via lactate dehydrogenase assay. Furthermore, we assayed Ect1 GSDMD KO and WT cell supernatants for differential release of proinflammatory cytokines via enzyme-linked immunosorbent assay (ELISA). In parallel, we sought to identify additional microenvironment-altering proteins released via GSDMD pores during Tv-induced pyroptosis using quantitative proteomics and western blot analysis. Upon Tv infection, we noted a striking 25% decrease in cytolysis of GSDMD KO cells compared to WT. Furthermore, cell supernatant analysis via ELISA showed a dramatic 53% decrease in IL-1β and a 25% decrease in IL-18 cytokine release in GSDMD KO cells compared to WT. Finally, quantitative proteomics demonstrated the selective release of potential microenvironment-altering proteins via GSDMD-NT pores. We further validated the differential release of these proteins via western blots. Collectively, we show that Tv triggers GSDMD-mediated pyroptosis in Ect1 cells. To our knowledge, this is the first evidence showing that Tv triggers pyroptosis in Ect1 cells and that female reproductive tract cells, not just immune cells, can undergo robust pyroptosis.

POSTER

Speaker

Johann Tailor

Lead Presenter | G - 5

Defining The Role Of Extradenticle In Adult Muscle Fiber Specification In Drosophila melanogaster

11:00 AM – 12:55 PM

MASTER'S

Despite significant research on extradenticle (Exd) and its developmental roles in Drosophila melanogaster, its function in adult muscle subtype specification remains limited. Exd is a conserved homeodomain transcription factor involved in processes that regulate the transition between jump muscle nuclei and fibrillar indirect flight muscle (IFM) identity. Studies suggest that Exd nuclear export and differential nuclear localization are vital for establishing muscle fiber–specific transcription, yet the upstream signaling pathways controlling these events remain unclear. This study investigates how kinase proteins regulate networks that influence Exd localization and muscle identity. Targeted RNA interference (RNAi) was performed in the adult IFM using a 1151-GAL4 driver to restrict knockdown to jump and flight muscles. A panel of kinase RNAi constructs, ERK, Doa, PI3KIIIa, and TRC, was examined to evaluate their effects on Exd cytoplasmic export, nuclear retention, and the resulting changes in fibrillar muscle morphology. Adult female hemithorax dissections, immunohistochemical staining, β-galactosidase reporter assays (MC4-lacZ), and confocal microscopy were used to quantify structural and transcriptional outcomes. Suppression of select kinases produced detectable influences on muscle formation and morphology; however, none of the tested knockdown constructs resulted in changes in fiber identity. Some kinases display functional redundancy, with others compensating for their loss. These results suggest that signaling molecules acting upstream of Exd may participate in regulating muscle-specific identity programs. Planned co-immunoprecipitation (Co-IP) assays will further examine binding interactions between Exd and its nuclear export carrier, Embargoed, in relation to kinase activity. Overall, this work enhances understanding of kinase-dependent control of transcription factor compartmentalization in adult muscle and how molecular signaling contributes to the specialization of distinct muscle fiber types in Drosophila.

POSTER

Speaker

Melanie Torres Ibarra

Lead Presenter | G - 5

Optimizing SourceTracker Accuracy Through Clustering Methods on Pure and Contaminated Source Samples

11:00 AM – 12:55 PM

MASTER'S

Microbial source tracking (MST) is an essential tool for identifying sources of environmental contamination. MST has expanded beyond its original public health applications to fields such as water quality monitoring, pollution assessment, food safety, soil microbiome tracing, and marine contamination studies. SourceTracker (ST) is a MST method that combines Bayesian probability and Gibbs sampling with deep sequencing data to estimate the contributions of microbial source environments (e.g., human waste, soils, freshwater) that contribute to a given sink sample (e.g., contaminated ocean water). While ST is a highly effective and groundbreaking MST approach, the effects of source sample variability and resolution on ST results remains unexamined. Here, we evaluate how source sample purity, differentiation, and taxonomic resolution, impact the stability and accuracy of ST predictions. We employ both supervised and unsupervised Partitioning Around Medoids (PAM) clustering, combined with silhouette analysis, to identify natural source groupings that best represent the microbial composition of a sink sample. By removing overlapping or contaminated source communities and selecting medoid-based pure samples, we expect to reduce the proportion of unknown assignments and improve the reliability of sink-source estimates. We further hypothesize that optimizing taxonomic resolution will enhance ST's ability to resolve contamination signatures in sink samples accurately. Overall, this study aims to provide an analytical framework for improving MST performance and deepen our understanding of the methodological and biological factors that shape sink-source estimates in complex systems.

POSTER

Speaker

Natalia Contreras

Lead Presenter | G - 5

Investigating Phylogeny and Speciation in North American Arbutus

11:00 AM – 12:55 PM

DOCTORAL

The genus Arbutus (Ericaceae) exhibits a classic Madrean–Tethyan disjunction, with species distributed across the Mediterranean Basin and western North America. In N. America, Arbutus diversity is concentrated in Mexico's Sierra Madre Occidental, a volcanically derived region characterized by strong elevational, climatic, and ecological heterogeneity. Despite its ecological and evolutionary importance, Arbutus remains taxonomically challenging due to extensive hybridization, paraphyly, and unclear species boundaries.

This research investigates phylogeny and speciation processes in N. American Arbutus, with emphasis on disentangling lineage divergence in the presence of ongoing gene flow. Three complementary objectives guide this study. First, species delimitation within the Arbutus xalapensis complex is examined by testing whether var. texana warrants recognition as a distinct species and by assessing evidence for a cryptic lineage. Previous genomic studies consistently recover two deeply divergent geographic lineages within A. xalapensis (Durango/Sierra Madre Occidental vs. Oaxaca), with genetic distances exceeding those between some currently recognized species. Morphological, ecological, and genomic data are integrated to clarify boundaries within this complex.

Second, the ancestry and evolutionary stability of a putative undescribed taxon arising from hybridization between A. arizonica and A. occidentalis will be investigated. Field observations suggest these hybrid populations form morphologically distinct and geographically coherent lineages, raising the possibility of hybrid speciation. Targeted triad sampling across sympatric and allopatric sites, combined with population genomic analyses, will be used to test hypotheses of hybrid origin and lineage stability.

Finally, foliar fungal communities associated with members of the xalapensis complex will be explored to evaluate whether microbial assemblages reflect host identity, microclimate, or hybrid ancestry, providing an independent ecological perspective on species boundaries and speciation with gene flow.

POSTER

Speaker

Raymond Stanley

Lead Presenter | G - 5

Feeding behavior and tradeoffs of California spiny lobster (Panulirus interruptus)

11:00 AM – 12:55 PM

MASTER'S

Lobsters play a key role in stabilizing coastal ecosystems and structuring benthic communities through top-down control of invertebrate prey and bottom-up responses to prey availability. Southern California's rocky reefs offer a model system for examining these interactions and the mechanisms driving predator-mediated ecosystem stability. Understanding the dietary niche of California spiny lobsters (Panulirus interruptus), as well as how diet may shift with ocean warming, is therefore essential. To examine how rising temperatures influence feeding behavior, I conducted laboratory trials in which lobsters were offered three prey species with varying caloric density and morphology held at either present-day ocean bottom temperatures or in tanks warmed by approximately 2–3°C, reflecting end-of-century projections. I quantified temperature effects on total consumption, prey selectivity, dietary breadth, and the role of energetic value in shaping preference. I hypothesized elevated ocean temperatures increases lobster feeding rates and alters prey choice, with caloric value influencing preference. Results revealed slight temperature-dependent shifts in feeding behavior. Lobsters in the warmer treatment consumed more prey overall and broader diets compared to those held at ambient temperatures. Higher temperatures appeared to elevate metabolic demand, promoting greater foraging effort and reduced specialization. These responses suggest that elevated temperatures may intensify energetic demand, modify foraging strategies, and alter predator-prey dynamics. Such shifts could affect prey populations and kelp forest ecosystem structure, particularly if stronger top-down pressure affects key herbivores such as sea urchins. Understanding these behavioral and energetic responses to warming is crucial for predicting how climate change will alter the ecological role of lobsters and the resilience of coastal marine communities. My research contributes to informing current management practices and guiding adaptive strategies in a warming ocean.

POSTER

Speaker

Shoshana Lescht-Smith

Lead Presenter | G - 5

Investigating evolutionary trends in disjunct populations of a white tree oak, Quercus oblongifolia

11:00 AM – 12:55 PM

DOCTORAL

Major geological events have fostered episodes of evolution across time via speciation through allopatry. One example that divided whole communities of plants and animals is the rifting of mainland Mexico, which formed both the Gulf of California and the Baja Peninsula four million years ago. Interestingly, sky islands in Baja California still cradle relictual populations of species once contiguous with the mainland and offer an opportunity to observe patterns of island-like endemism operating today. Performing genetic analysis on white oaks collected from the Baja peninsula historically identified as Quercus oblongifolia will tell us about the ancestry of these populations, how distinct they are from other populations, and confirm when they arrived in Baja California. Using ecological niche modeling we will predict the future distributions of these populations under different climatic scenarios and help evaluate their level of conservation concern. Due to the recent divergence time between Q. oblongifolia, Q. engelmannii, Q. depressipes, Q. grisea and Q. arizonica, all species will be used to identify the genetic origins of isolated populations within Baja. This analysis will tell us if present day Baja populations are purely Q. oblongifolia and whether they more likely diverged from populations of Q. oblongifolia now present in the Sierra Madre Occidental in Mexico and Arizona or from populations adjacent to the endangered Q. engelmannii now isolated to southern California and northern Baja California. Estimating the past evolutionary history and ecological processes that resulted in these white oak populations in Baja and predicting the future distributions of these populations will help land managers develop optimal conservation strategies for an ecologically important species.

POSTER

Speaker

S **Sjana Carter**
Lead Presenter | G - 5

G - 6: Media in a Changing World (U)

11:00 AM – 1:00 PM | Location: Montezuma Hall

UNDERGRADUATE

MEDIA POSTER SPECIAL SESSION

Speakers

B **Benson Pham**
Lead Presenter | G - 6

C **Carolina Flores**
Lead Presenter | G - 6

E **Esmeralda Hernandez Cardenas**
Lead Presenter | G - 6

Maya Rahav
Research Assistant | LEAF Laboratory

T **Todd Bradley**
Lead Presenter | G - 6

V **Victor Hernandez- Bustos**

Russian Hybrid Warfare: How Russian Strategies Evolve Across Georgia and Ukraine

11:00 AM – 12:55 PM

UNDERGRADUATE

Despite extensive theoretical analysis of Russian hybrid warfare as a doctrine, existing scholarship has overlooked critical variations in how these operations adapt across different target states with distinct domestic politics and geopolitical contexts. This study addresses this gap through a comparative analysis of Russia's hybrid warfare campaigns in Georgia and Ukraine from 2008 to 2022, applying Valery Gerasimov's foundational publication of the so-called "Gerasimov doctrine", Mason Clark's dual-track framework of information-subordinate kinetic operations, and Tony Selhorst's model of reflexive control and perception management. Drawing on primary Russian state media, official government statements, and Western intelligence assessments, this research identifies key factors that determine Russian tactical adaptation. The analysis demonstrates that Russian hybrid operations exploit these vulnerabilities through varied phased campaigns that combine cyber operations, economic coercion, and deliberate informational obfuscation, with conventional military force deployed only when these non-military mechanisms prove insufficient. By examining the operational evolution from information conditioning through covert military action to full-scale invasion, this study challenges prevailing assumptions that treat hybrid warfare as a static doctrine or merely a "set of means," instead demonstrating that it constitutes a sophisticated, whole-of-government strategic approach that requires dedicated analytical attention. These findings significantly contribute to the theory of hybrid warfare and inform NATO's collective defense planning by highlighting the critical importance of situating policy responses within specific regional contexts, rather than relying on "gray zone" frameworks. Contemporary evidence from 2024-2025 suggests that Russia views hybrid warfare not as a discredited strategy, but as an evolving capability that requires continuous technological and tactical adaptation. This trajectory indicates that hybrid warfare, rather than representing a transitory phase

MEDIA POSTER SPECIAL SESSION

Speakers

B

Benson Pham

Lead Presenter | G - 6

Parker Allard

Co-Presenter | G - 6

Empowering Mathematical Reasoning through Transnational Mentoring Sessions

11:00 AM – 12:55 PM

UNDERGRADUATE

As future educators, we are called to continuously challenge our instructional practices in order to cultivate deeper thinkers and more resilient learners. Mathematics education, particularly for English Language Learners (ELLs), requires intentional strategies that anticipate diverse learning needs and linguistic backgrounds. In borderland communities such as Imperial Valley–Mexicali, these challenges are intensified by geopolitical realities, bilingual identities, and limited access to culturally responsive STEM instruction.

Formulas = (Success)² is a bilingual, community-based math tutoring and mentorship initiative designed to address these inequities through scaffolded instruction and translanguaging practices. Grounded in sociocultural learning theory and border pedagogy, the project positions scaffolding as a central instructional strategy that supports gradual release of responsibility, allowing students to move from guided practice to independent mathematical reasoning. This approach is especially effective for English Learners, as it integrates academic vocabulary development with conceptual understanding.

Within the initiative, math concepts such as solving two-step equations are taught through explicit modeling, step-by-step instruction, and intentional use of bilingual academic language (e.g., multiply/multiplicar, divide/división). By naming and reinforcing mathematical processes in both English and Spanish, students are supported in acquiring content knowledge while simultaneously strengthening academic language proficiency.

Digital tools play a key role in enhancing engagement and comprehension. Platforms such as Desmos are used to support visual learning, mathematical exploration, and multilingual access. These tools allow students to interact with equations dynamically, compare representations, and practice reasoning in their preferred language. Supplemental bilingual worksheets and personalized mentoring further ensure that instruction aligns with students' individual needs, preferences, and learning goals.

MEDIA POSTER SPECIAL SESSION

Speaker

C

Carolina Flores

Lead Presenter | G - 6

Bases, Borders, and Backlash: The Dodgers and Latinx/e Activism Online

11:00 AM – 12:55 PM

UNDERGRADUATE

Los Angeles has been a city that has been highly affected by U.S. Immigration and Customs Enforcement (ICE) raids targeting Latinx/e individuals since May 2025. On June 6, residents of the LA area went out to protest and express their sentiments against the ICE raids. The Los Angeles Dodgers have a large Latinx/e fanbase, and many fans asked the team to speak out against the ICE raids. Many of their fans were disappointed in the team's silence because a large majority of their fanbase was being negatively affected. Additionally, many felt the team's eventual denial of ICE entry to the Dodger Stadium parking lot, as well as the team's pledge of one million dollars, was not enough and viewed their actions as a ploy to enhance their image. Alternatively, there was another portion of fans that argued sports and politics should be separate and supported the team's silence. This study focuses on that debate and analyzes fan responses on social media. This study's focus is on how people interpret the Dodger's behavior, and silence, during the 2025 LA ICE raids, specifically through discourse on Latinx/e-targeted online media platforms. To answer this question, the authors sampled fan comments from media posts centering on the Dodgers from four digital news media companies (Mitu, Remezcla, De Los, and LA Tacos) between October 22 and November 21, 2025. A discourse analysis was performed on over 2,000 comments in the posts' comment section and found themes of: 1) remembrance of other harmful past actions of the Dodgers inflicted on the LA Latinx/e community; 2) anger toward the Dodgers; 3) support for the Dodgers silence; 4) politics-driven opinion; and 5) call to actions and boycott. This study helps further our understanding of the relationship between sports, immigration, fandom, and online discourse.

MEDIA POSTER SPECIAL SESSION

Speaker

Esmeralda Hernandez Cardenas

Lead Presenter | G - 6

From Discrimination to Disinhibition: The Role of Social Connectedness

11:00 AM – 12:55 PM

UNDERGRADUATE

Belonging is a fundamental human motivation often fulfilled through social connectedness (SC), defined as the sense of affiliation individuals feel within their social environments (Lee & Robbins, 1995). For marginalized communities, digital spaces can offer opportunities to build interpersonal relationships and foster belonging (Brunskill, 2013; Mehra et al., 2004; Jackson et al., 2008). However, social media (SM) use has been associated with the online disinhibition (OD) effect, where individuals behave online in ways they typically would not offline (Suler, 2004). These behaviors are shaped by psychological factors including stress. Discrimination is a chronic stressor, and individuals with intersecting marginalized identities face greater exposure, contributing to health disparities (Lewis et al., 2015; Ransome et al., 2023). A systematic review of 32 studies found that in 81% of cases, SC buffered the link between discrimination and negative health outcomes (Ransome et al., 2023). This supports the SC erosion hypothesis, which proposes that discrimination weakens social ties. This study examined the relationship between everyday discrimination, SC, and OD among 680 college students, many from marginalized backgrounds. Participants completed the Intersectional Discrimination Index-Day-to-Day (InDI-D; Scheim & Bauer, 2019), Social Connectedness Scale (SCS; Lee & Robbins, 1995), and Online Disinhibition Scale (Cheung et al., 2021), along with demographic questions. Hierarchical multiple regression was used to test the models. InDI-D alone significantly predicted online disinhibition ($p = .032$) but explained less than 1% of the variance. When SCS was added, the model improved significantly ($p = .001$), with connectedness accounting for an additional 9.4 percent. The full model explained 10.1% of variance, with SC emerging as the stronger predictor. These results suggest that discrimination-related stress may reduce social bonds and increase OD. Future research should explore differences across SM platforms and identity groups.

MEDIA POSTER SPECIAL SESSION

Speaker

Maya Rahav

Research Assistant | LEAF Laboratory

War Stories I Never Heard

11:00 AM – 12:55 PM

UNDERGRADUATE

War Stories I Never Heard explores the impact of discovering a loved one's World War II Military stories after his death, and longing for a deeper personal connection with him after he's gone.

EXHIBIT MEDIA SPECIAL SESSION

Speaker

Todd Bradley

Lead Presenter | G - 6

Testimonios del Colibrí

11:00 AM – 12:55 PM

UNDERGRADUATE

As the Latinx Resource Center (LRC) at San Diego State University reaches its fifth anniversary, this project centers the voices, memories, and lived experiences of the community members who fought to create and sustain the space. Born from years of student activism, collective visioning, and deep cultural pride, the LRC reflects the resilience and leadership of Latinx students, organizers, alumni, and campus partners who recognized the need for a dedicated home for Latinx belonging and empowerment. This community-centered documentation initiative ensures that the story of the LRC is told by those who lived it, rather than being reconstructed from institutional memory alone.

Through oral history interviews, storytelling sessions, and the gathering of community artifacts, this project seeks to honor the people and movements that shaped the LRC's foundations. A collaborative team of student leaders, digital humanities practitioners, archivists, and current LRC staff will support community members in sharing their stories in ways that feel authentic, culturally rooted, and relational. The project includes the creation of a visual storytelling film, the development of an interactive timeline representing key moments of activism and growth, and the preservation of materials within SDSU Library archives to ensure long-term community access.

By elevating personal narratives and intergenerational knowledge, the project contributes to the broader preservation of Latinx histories within higher education and affirms the central role of community memory in shaping campus transformation. Ultimately, this work celebrates the collective labor that made the LRC possible and preserves its story so future generations of Latinx students can see themselves in its legacy.

MEDIA POSTER SPECIAL SESSION

Speaker

V **Victor Hernandez- Bustos**

G - 7: Behavioral and Social Sciences (G) 4

11:00 AM – 1:00 PM | Location: Montezuma Hall

GRADUATE

POSTER

Speakers

Andrea Van Bebber

B **Brittney Ayala**
Lead Presenter | G - 7

Elizabeth Gately
Paraprofessional substitute | Zen educate

J **Jesse Horsley**
Lead Presenter | G - 7

J **Jessica Jones**
Lead Presenter | G - 7

J **Julia Steinberg**
Lead Presenter | G - 7

N **Nycherie Hong**
Lead Presenter | G - 7

S **Sidney Horne**
Lead Presenter | G - 7

Sexual and Reproductive Health Stigma and Service-seeking Behavior Among Latinx Transborder Students

11:00 AM – 12:55 PM

MASTER'S

Transborder students are binational individuals who frequently cross the U.S.–Mexico border to attend school, work, or receive health services and face distinct sociocultural and structural challenges (Falcón Orta et al., 2021; Fitch & Falcón Orta, 2025). These challenges include border militarization, family separation, mixed immigration status households, and cultural stigmas, particularly related to sexual and reproductive health (SRH) (Caal et al., 2013; Darney et al., 2025). In the United States, Latina and Latinx students in need of obstetric and gynecological care experience persistent disparities in SRH access and outcomes (Buhi et al., 2014; Murray Horwitz et al., 2018; American College of Obstetricians and Gynecologists [ACOG], 2022). However, the influence of stigma and service-seeking behaviors among transborder Latinx college students in the Southwestern California border region remains understudied.

This study examines SRH service-seeking patterns and stigma among transborder Latinx college students in need of obstetric and gynecological care (ages 18–25) in the Calexico–Mexicali borderlands. Borderlands theory is integrated into a socioecological framework to examine the multiple contextual factors influencing SRH access. Using logistic regression, the study tests associations between perceived barriers and cross-border SRH service utilization. Participants will be recruited from two college campuses through flyers, and data will be collected via an online survey.

The study hypothesizes that higher levels of felt stigma are associated with lower odds of seeking SRH services, that parental disapproval is associated with reduced service-seeking even when controlling for barriers such as cost, insurance, or fear of results, and that border-crossing frequency influences whether services are sought in the U.S. or Mexico. Findings aim to inform culturally responsive, stigma-free interventions that improve SRH access, equity, and outcomes for transborder Latinx students.

POSTER

Speaker

Andrea Van Bebber

Understanding Student Utilization of Wellness Services

11:00 AM – 12:55 PM

MASTER'S

Purpose: Stress and mental health issues are increasingly common in teens. Many students (48%) experience stress during school, with middle school students at a heightened risk for increased stress. Wellness centers can be beneficial for student achievement, overall health and wellbeing by offering a safe environment, resources to meet basic needs, and health services. However, wellness centers cannot impact student health if students do not access the services offered. The purpose of this project is to examine student engagement with a Wellness Center at a local San Diego middle school. Methods: A mixed-methods design was used in which students completed a self-report survey (10 minutes) and a subset completed a one-on-one interview (20 minutes). Students reported whether they used Wellness Center resources and factors that impacted their use. One-on-one interviews (15 minutes) were also conducted with school administrators who select, coordinate, or deliver the services for the Wellness Center. Descriptive statistics were computed for survey data. Interviews will be analyzed using a rapid qualitative analytic technique. Results: Data collection is ongoing. To date, 10 7th- and 8th-grade students have completed the survey (60% female, 40% male). Most students (80%) have used the Wellness Center. Those who don't use the Center stated this is due to time constraints and not needing the services. Of the students who use the Center, lunch time activities and daily wellness breaks were the most used services. Most importantly, many students reported that there would be more engagement if the hours of operation were expanded and additional opportunities were offered to learn about available resources (60% and 50%, respectively). Student and administrator interviews will be conducted in January 2026. Conclusion: This quality improvement initiative fills the gap in understanding middle school students' perspectives on the utility and accessibility of wellness centers; future data from administrators will also aid in understanding how services are selected and promoted.

POSTER

Speaker

B

Brittney Ayala

Lead Presenter | G - 7

A Systematic Review: Prenatal Opioid Exposure and Long-term Effects

11:00 AM – 12:55 PM

MASTER'S

In recent years, prescription opioid abuse has drastically increased among pregnant people, leaving millions of babies exposed prenatally. The objective of this systematic literature review was to synthesize recent findings from peer-reviewed research examining the long-term effects of prenatal opioid exposure on children's development and wellbeing. Through a comprehensive database search, a total of 90 relevant articles were identified documenting the effects of Opioid use during pregnancy on children's developmental outcomes. For this poster, the most relevant findings have been limited to 10 articles. The key search terms included, 'Prenatal Opioid Exposure', 'Effects of Prenatal Opioid Use on Child Development', and 'Neonatal Opioid Withdrawal Syndrome'. The main findings across the reviewed studies can be organized into two primary themes: 1) children prenatally exposed to opioids were found to experience long-term, negative psychological difficulties (i.e., Opioid withdrawal syndrome, substance abuse disorder) and neurodevelopmental deficits , and 2) an emergent theme across several studies indicated that maternal opioid use was more strongly linked to child opioid use than paternal opioid use. This illustrates the effect that mothers have on children. This study highlights the need for policy changes that support addicted pregnant women. Finding treatment earlier can benefit both mother and child from further opioid misuse.

POSTER

Speaker

Elizabeth Gately

Paraprofessional substitute | Zen educate

Non-Intrusive Survey of Archaeological Burials Using Ground-Penetrating Radar

11:00 AM – 12:55 PM

MASTER'S

This project presents a non-intrusive archaeological survey of the Pioneer-era Calvary Cemetery, now known as Pioneer Park, located in the Mission Hills area of San Diego. The study employs Ground-Penetrating Radar (GPR) in combination with historical archival burial records to spatially map the distribution of burial shafts. The survey also aims to identify unmarked or lost burials that may have been disturbed or destroyed as a result of urban development and vandalism.

This mixed-methods approach integrates advanced geophysical technology with community-based, non-destructive archaeological practices developed in collaboration with Indigenous communities and the broader San Diego County community. This methodology responds directly to historic preservation and burial protection laws designed to safeguard Indigenous peoples and communities impacted by violence.

While this research is focused on Late-Mexican Era and Early-American Period internments, by centering ethical stewardship and community co-partnership, the project seeks to further address the long-term effects of colonial and neo-colonial power structures on marginalized burial landscapes. Thereby contributing to respectful preservation and site management strategies for future archaeological practice.

POSTER

Speaker

J **Jesse Horsley**
Lead Presenter | G - 7

Identifying the Need for Updates to Bilingual Aphasia Assessment Tools

11:00 AM – 12:55 PM

MASTER'S

In the United States alone, over 2 million people are currently living with aphasia, an acquired language disorder that typically results following a stroke. As it pertains to bilinguals, bilingual aphasia is thus an impairment in one or both languages, which is not always followed by equal degrees of recovery across languages. With the rising prevalence of bilingual speakers around the world it is increasingly important that bilingual individuals with aphasia get the same access to services across all their languages. As of 2022, only 11.5% of certified speech-language pathologists identified as multilingual service providers and reported providing services in a language other than English. This highlights the disparity of access to services in languages outside of English. An additional hurdle for both bilingual providers and individuals with aphasia is the availability of bilingual assessment tools. Providers currently have two options: the use of monolingual assessments that were not intended for bilingual language assessment or bilingual assessment tools, some of which were developed over 30 years ago and may not align with current sociocultural and linguistic needs. In the current study we review the tools currently available for the assessment of bilingual speech and language, with a particular focus on the Bilingual Aphasia Test. We present the themes of stimuli that may be considered as outdated, culturally insensitive, or otherwise problematic and identify where such problematic items come from (e.g. systemic sexism). We additionally review the necessary steps that go into the creation and updating of such assessment tools. We do so in the hopes of opening up dialogue surrounding the availability of and need for culturally sensitive materials to assess bilingual speech and language.

POSTER

Speakers

J **Jessica Jones**
Lead Presenter | G - 7

A **Andrea Galvez-Mcdonough**
Co-Presenter | G - 7

Effects of Prenatal CBD Exposure on the Stress Response

11:00 AM – 12:55 PM

MASTER'S

Cannabis is a commonly used illicit drug that contains hundreds of cannabinoids, including cannabidiol (CBD). CBD has increased in popularity due to its potential therapeutic properties in reducing pain, inflammation, anxiety, and nausea. Of concern, individuals may utilize CBD to address such symptoms during pregnancy. However, little is known about the effects of CBD on fetal brain and behavioral development, including effects on stress regulation. The present study uses an animal model to investigate if prenatal CBD exposure alters stress hormone response (corticosterone) at baseline and/or after exposure to an acute stressor among the offspring. Pregnant Sprague-Dawley rats were randomly assigned to prenatal CBD (50 mg/kg/day) or control (0 mg/kg/day) conditions. CBD was delivered via a cookie dough edible, which was consumed by the pregnant dam on gestational days 5-20. To elicit a stress hormone response, offspring were exposed to an acute stressor (elevated-platform stress test) on postnatal day 45. Blood samples were obtained 15 minutes before and immediately after exposure to the stressor, and the plasma was extracted. An enzyme-linked immunosorbent assay (ELISA) was used to detect and quantify corticosterone in the pre-stress and post-stress plasma samples. Results indicate that prenatal exposure to CBD blunts the stress response following exposure to an acute stressor, particularly in males. Taken together, the current study suggests that prenatal CBD exposure may impact stress regulation systems that are essential for survival and homeostasis. Future research should further investigate the potential risks of CBD use during pregnancy on the developing fetus to address this rising public health concern. Supported by Center for Medicinal Cannabis Research P64-07-001.

POSTER

Speaker

J **Julia Steinberg**
Lead Presenter | G - 7

Characterizing Culture in Early Language Development: The Role of Family Structure

11:00 AM – 12:55 PM

MASTER'S

Environmental factors support early language: quantity and quality of input, relative language exposure, home literacy environment, and socioeconomic status (SES). Recent literature focuses on richly characterizing SES, including cultural influences and community of descent (Singh et. al., 2024). We explore different characterizations of SES and their relation to vocabulary.

An Exploratory Factor Analysis (EFA) was conducted on demographic data from 329 parent participants. SES factor loadings were assessed for income-to-needs ratio, primary caregiver education, household size (HHS), and adult-to-child-ratio (ACR). A two-factor model best fit the data with income-to-needs, primary caregiver education and HHS loading on the first factor and HHS and ACR loading on the second, accounting for 37.74% of the variance. Because HHS loaded on both factors, a second one-factor EFA was conducted (i.e., income-to-needs, primary care-giver education, and HHS) accounting for 36.15% of the variance.

Post-hoc analyses evaluated fit across ethnicity. The first SES factor accounted for more variance than the second factor (35.760% vs. 3.875%) among Hispanic participants. In contrast, a two-factor solution best fit the data for non-Hispanic participants.

Data were collected for 74 participants (Mage = 35.81, range = 18 to 60, 41F; 38 monolingual English and 33 bilingual/monolingual Spanish). Children completed the English or Spanish Computerized Comprehension Task or both (CCT; Friend & Zesiger, 2011; Friend et al., 2012) via an online moderated procedure.

Vocabulary was regressed onto SES controlling for sex, age, and language status. SES was significantly associated with vocabulary ($\beta = 0.23$, $t = 3.36$, $p = .001$) however, the addition of ACR did not improve model fit. An SES X ACR interaction term improved fit, accounting for 74.4% of the variance. Post-hoc analyses yielded similar results for Hispanics only, suggesting that family structure contributes to vocabulary acquisition in Hispanic, but not non-Hispanic, households. The most appropriate SES metric may vary with ethnicity.

POSTER

Speaker

Nycherie Hong

Lead Presenter | G - 7

The Reliability of the N2pc As An Index of Attention to Threat in the Dot-Probe Task

11:00 AM – 12:55 PM

MASTER'S

Attentional bias to threat is the preferential allocation of attention toward threatening stimuli in the environment. It has been proposed as an evolutionary process that facilitates reaction to possible sources of danger and has been implicated as a core feature underlying anxiety disorders. The field-standard task for examining attention to threat in the laboratory is the dot-probe paradigm, which typically compares reaction times (RTs) to a target (probe) stimulus presented at the same location immediately following a threatening image (such as a snake or a gun) versus a neutral image (such as a basket or a chair). However, there have been concerns raised surrounding the poor internal consistency of the traditional RT measures examined in the task. In contrast to RTs, previous studies have demonstrated moderate internal reliability of attention to threat in the dot-probe paradigm using the N2pc event-related potential (ERP). The N2pc has been used in neuroscience research for decades as a measure of the allocation of covert visual attention to an object. In the dot-probe paradigm, the N2pc has been used to show that attention is rapidly and reliably shifted toward the threatening image across trials, indicating that this measure may provide a more suitable index of attention toward threat than traditional RT measures. To build on these results, the present study examined the test-retest reliability of the N2pc in the dot-probe task across testing sessions. Forty participants completed a dot-probe paradigm using inherently threatening and neutral images from the International Affective Picture System (IAPS) while EEG was recorded in two testing sessions separated by approximately 1 week. The N2pc and RTs were computed separately for each session, and the internal reliability within each session, as well as the test-retest reliability across sessions, will be presented for each measure. These results will have important implications for the measurement of attention to threat in healthy and anxious populations.

POSTER

Speaker

Sidney Horne

Lead Presenter | G - 7

G - 8: AI & Robotics in Autonomy (G) 1

11:00 AM – 1:00 PM | Location: Montezuma Hall

UNDERGRADUATE GRADUATE

AI POSTER SPECIAL SESSION

Speakers

Changhoon Sung

Lead Presenter | G - 8

Fuad Akanda

Lead Presenter | G - 8

Gamze Kirman Tokgoz

Lead Presenter | G - 8

Johannes Mootz
Lead Presenter | G - 8

Jun Xiang
Lead Presenter | G - 8

Larry Garcia
Lead Presenter | G - 8

Xuewei Chen
Lead Presenter | G - 8

Lars Bjorndal
Lead Presenter | G - 8

SCHED+: Analyzing Policy Stability in RL-based CPU Scheduling for Autonomous Vehicles

11:00 AM – 12:55 PM

MASTER'S

Autonomous driving systems require consistent low-latency processing across complex sensing, perception, and control pipelines, making stable OS-level scheduling essential. However, general-purpose OS schedulers, designed primarily for fairness and throughput, often induce high tail latencies in autonomous vehicle (AV) workloads characterized by mixed-criticality tasks. While CPU scheduling has been extensively studied, machine learning-based schedulers that are lightweight enough for kernel integration, yet capable of delivering consistent quality, remain scarce. Our previous work, SCHED, demonstrated the feasibility of learning a scheduling policy via reinforcement learning (RL) and distilling it into a decision-tree-based model for OS integration. While SCHED achieved competitive inference speeds, its policy quality and stability were limited by distribution shifts inherent in offline RL and information loss during the distillation process. In this extension, SCHED+, we aim to quantitatively identify the factors contributing to this policy degradation. Specifically, we conduct a sensitivity study to investigate how Behavior Cloning (BC)—which replicates the default OS policy to establish a performance baseline—along with offline RL policy characteristics and distillation model architectures, contribute to the final scheduling quality. Preliminary analysis suggests that even minor design choices, such as model type or tree complexity, can have a significant impact on policy stability in real-world workloads. Finally, we discuss potential pathways for safe policy improvement beyond the cloned baseline. We explore candidate strategies—such as conservative offline RL (e.g., CQL) or controlled offline-to-online fine-tuning—to address distribution shifts. By identifying these directions, we aim to provide design implications for integrating such algorithms to eventually surpass the teacher policy without compromising system stability.

AI POSTER SPECIAL SESSION

Speaker

Changhoon Sung
Lead Presenter | G - 8

Optimization and Quantization of Machine Learning Models for Energy-Efficient TinyML Deployment

11:00 AM – 12:55 PM

MASTER'S

The integration of machine learning into low-power embedded systems has given rise to Tiny Machine Learning (TinyML), where the key challenges involve achieving acceptable accuracy under strict computational and energy constraints. This research proposes a novel unified evaluation and optimization framework that enables comprehensive assessment of machine learning models without requiring physical hardware deployment. The framework integrates feature selection, quantization, memory profiling, latency measurement, and analytic energy estimation within a single automated pipeline.

In this study, several classical models—Decision Tree, Random Forest, XGBoost, Logistic Regression, and Support Vector Machine—are systematically compared with a lightweight neural network converted to TensorFlow Lite in multiple quantization levels (float32, dynamic-range, float16, and int8). Each model is analyzed in terms of classification accuracy, inference latency, model size, and peak memory utilization, with feasibility determined against microcontroller constraints of 1 MB flash and 256 KB RAM. To overcome the absence of on-device energy measurement, the framework incorporates an analytic energy estimation approach based on Horowitz's per-operation energy model, establishing a reproducible and hardware-independent method for evaluating energy efficiency.

The novelty of this research lies in the integration of quantization-aware performance benchmarking and theoretical energy modeling into a unified and reproducible evaluation pipeline. Preliminary results demonstrate that chi-square-based feature reduction substantially reduces computational cost with minimal accuracy degradation, while the int8-quantized neural model achieves the most favorable trade-off between accuracy, size, and theoretical energy efficiency. This framework establishes a practical and extensible methodology for optimizing TinyML models and can serve as a foundation for future research on automated, energy-aware model deployment for edge intelligence.

AI POSTER SPECIAL SESSION

Speaker

Fuad Akanda
Lead Presenter | G - 8

INTARG: Informed Real-Time Adversarial Attack Generation for Time-Series Regression

11:00 AM – 12:55 PM

MASTER'S

Time series forecasting predicts future values from historical data and is critical in real-world systems, including power systems, healthcare, and finance, where accurate forecasts improve efficiency and mitigate uncertainty in real-time streaming settings. However, forecasting models are vulnerable to adversarial attacks, where crafted perturbations are added to the input to degrade performance. Adversarial robustness is a model's ability to maintain performance under such attacks. Existing studies generally assume access to all historical data and thus fail to capture streaming scenarios, where recent data can be stored and rapid decisions are required. Even when long histories exist, resource limits on memory and storage make it more realistic for models to access only a limited window of recent observations.

This project proposes a framework for evaluating adversarial robustness in streaming time-series forecasting under a limited-memory. A fixed-size rolling buffer is split into training and validation parts; a Convolutional Neural Network (CNN) forecaster is trained on the training part, while quantile regression on the validation part provides prediction intervals that quantify uncertainty. For each new data point, a prediction interval and an adaptive, quantile-based threshold are computed, and adversarial attacks are triggered only when the model is confident. We adopt an informed selective attack strategy rather than attacking every time step. By focusing on data points where the model is confident and the prediction error is expected to be largest, the framework generates fewer but more effective attacks. Attack impact is evaluated by comparing clean and attacked root mean squared error (RMSE) on the attacked subset, and an attack detection method reports detection rates. Experiments on the UCI Household Power Consumption dataset demonstrate the framework in a power-systems setting using the Fast Gradient Sign Method (FGSM) on 15.08% of high-confidence time steps increases the RMSE on the attacked subset from 0.0840 to 0.2335, a 2.8× increase in error.

AI POSTER SPECIAL SESSION

Speaker

Gamze Kirman Tokgoz

Lead Presenter | G - 8

Beyond Vision: Audio-Augmented CBFs for Autonomous Navigation on Construction Sites

11:00 AM – 12:55 PM

DOCTORAL

Construction sites are acoustically rich yet visually unpredictable environments, where dust, machinery, and humans often interfere with camera-based perception. This work introduces a navigation framework that treats sound not as background noise but as a critical safety signal for autonomous construction robots. We fuse Control Barrier Functions (CBFs), which provide formal forward-invariance guarantees by shaping a safety barrier around obstacles to prevent dangerous proximity, with an online jackhammer detector. The detector extracts tool activity from audio envelope and periodicity and supplies this contextual risk information to the controller. When hazardous sound is detected, the barrier function is modified in real time, tightening the robot's allowable distance to obstacles and enabling the controller to adapt to elevated on-site risk. Implemented in ROS and evaluated in cluttered construction scenarios, the system achieves larger safety margins while maintaining smooth, purposeful motion. To our knowledge, this is the first CBF-based safety controller augmented with audio perception. More broadly, this work signals a shift toward robots that understand their environment through multiple complementary senses. This paves the way for safer, more context-aware autonomy in complex, human-centered workspaces.

AI POSTER SPECIAL SESSION

Speaker

Johannes Mootz

Lead Presenter | G - 8

Data-driven Probabilistic Trajectory Learning with High Temporal Resolution in Terminal Airspace

11:00 AM – 12:55 PM

DOCTORAL

Predicting flight trajectories is a research area that holds significant merit.

In this paper, we propose a data-driven learning framework, that leverages the predictive and feature extraction capabilities of the mixture models and seq2seq-based neural networks while addressing prevalent challenges caused by error propagation and dimensionality reduction. After training with this framework, the learned model can improve long-step prediction accuracy significantly given the past trajectories and the context information. The accuracy and effectiveness of the approach are evaluated by comparing the predicted trajectories with the ground truth. The results indicate that the proposed method has outperformed the state-of-the-art predicting methods on a terminal airspace flight trajectory dataset. The trajectories generated by the proposed method have a higher temporal resolution(1 timestep per second vs 0.1 timestep per second) and are closer to the ground truth.

AI POSTER SPECIAL SESSION

Speaker

Jun Xiang

Lead Presenter | G - 8

Lightweight UAV-Borne 3D Perception via Pan-Tilt 2D LiDAR

11:00 AM – 12:55 PM

MASTER'S

Light detection and ranging (LiDAR) provides accurate and lighting-invariant 3D maps essential for autonomous Unmanned Aerial Vehicle (UAV) navigation, localization, and obstacle avoidance. However, conventional 3D LiDARs exceed the size, weight, power, and cost constraints (SWaP-C) of small UAVs. This work presents a low-SWaP 3D perception system that converts an inexpensive 2D LiDAR into a volumetric mapper and obstacle detector using servo-driven pan-tilt actuation. The proposed system generates dense 3D point clouds in real time and detects obstacles using a lightweight perception pipeline. The system employs a containerized ROS architecture designed for deployment on embedded platforms with limited computational resources. Bench-top and flight experiments on a custom UAV demonstrate full panoramic mapping in 8-12 seconds with average processing latency under 114 ms, validating the system's suitability for airborne 3D sensing applications.

AI POSTER SPECIAL SESSION

Speaker

L **Larry Garcia**
Lead Presenter | G - 8

Attitude-Aware Autoregressive Prediction of Drone State Space

11:00 AM – 12:55 PM

DOCTORAL

Accurate trajectory prediction of unmanned aerial vehicles (UAVs) requires modeling complex temporal dependencies and multi-dimensional flight dynamics, including position, velocity, acceleration, and attitude. Although Transformer-based approaches have shown promise in aircraft and vehicle trajectory forecasting, most existing methods adopt a one-shot prediction strategy that generates all future states simultaneously, limiting their ability to capture evolving dynamics.

In this work, we introduce an attitude-aware autoregressive Transformer for UAV trajectory prediction in the state-space domain. The model takes as input a sequence of multi-dimensional flight states-comprising spatial coordinates, velocities, accelerations, and attitude representations, and predicts the next-step state iteratively in a self-feeding autoregressive manner. This formulation enables the model to learn fine-grained temporal evolution while maintaining consistency across motion and orientation.

AI POSTER SPECIAL SESSION

Speaker

X **Xuewei Chen**
Lead Presenter | G - 8

Localized Cyberattack Detection for Distributed Energy Resources

11:00 AM – 12:55 PM

DOCTORAL

Policy, economic, and environmental factors are rapidly increasing the global deployment of distributed energy resources such as wind and solar. While these resources can provide affordable and sustainable power, they rely on network-connected controllers that must operate in coordination with the electric grid. As a result, the expansion of distributed generation also increases the grid's exposure to cyberattacks, creating a growing need for localized cyberattack detection to ensure safe and reliable operation.

Small scale machine learning based methods have shown great potential for detection and classification of these events. Previous models can run locally and reliably distinguish between attacks and naturally occurring events. However, these models rely on a large number of sensors to provide the necessary data. This has forced previous implementation to use the same sensors as the controller, leaving them vulnerable to any attack the target these sensors. We address this issue by demonstrating the functionality of a single sensor-based attack detection model, making it possible to use a fully independent sensor.

Our model can detect and classify attacks and natural events with 100% accuracy within 30ms, exceeding previous detection methods and allowing time to clear any abnormal behavior within the requirements dictated by the IEEE standard 1547 for distributed energy generation resources.

AI POSTER SPECIAL SESSION

Speaker

L **Lars Bjorndal**
Lead Presenter | G - 8

G - 9: AI & Robotics in Autonomy (U/G) 1

11:00 AM – 1:00 PM | Location: Montezuma Hall

UNDERGRADUATE UNDERGRADUATE/GRADUATE

AI POSTER SPECIAL SESSION

Speakers

Behrad Beheshti
Lead Presenter | G - 9

Alyssa Serrano
Lead Presenter | G - 9

Jeffery Schroeder
Lead Presenter | G - 9

Joselyn Cesare
Lead Presenter | G - 9

Bootstrapped LLM Semantics for Context-Aware Path Planning

11:00 AM – 12:55 PM

UNDERGRADUATE

Prompting robots with natural language (NL) has largely been studied as what task to execute (goal selection, skill sequencing) rather than how to execute that task safely and efficiently in semantically rich, human-centric spaces. We address this gap with a framework that turns a large language model (LLM) into a stochastic semantic sensor whose outputs modulate a classical planner. Given a prompt and a semantic map, we draw multiple LLM “danger” judgments and apply a Bayesian bootstrap to approximate a posterior over per-class risk. Using statistics from the posterior, we create a potential cost to formulate a path planning problem. Across simulated environments and a BIM-backed digital twin, our method adapts how the robot moves in response to explicit prompts and implicit contextual information. We present qualitative and quantitative results.

AI POSTER SPECIAL SESSION

Speaker

Behrad Beheshti
Lead Presenter | G - 9

PRINCE: Predictable Inference Latency using CUDA Green Contexts

11:00 AM – 12:55 PM

MASTER'S

Graphics Processing Units (GPUs) are increasingly used in autonomous systems such as self-driving cars, where deep neural networks must meet strict real-time deadlines. These workloads benefit from the massive parallelism of GPUs, but typical deployments often run a single neural network per GPU, leading to under-utilized resources and unpredictable latency. In this work, we investigate the concurrent execution of multiple convolutional neural networks (CNNs) on a single GPU to improve utilization while targeting reduced latency variance for real-time predictability. By enabling multiple CNNs to run in parallel, our approach aims to better exploit GPU parallelism, provide more consistent inference times, and support the stringent timing requirements of safety-critical autonomous applications.

AI POSTER SPECIAL SESSION

Speaker

Alyssa Serrano
Lead Presenter | G - 9

Presentation Withdrawn

11:00 AM – 12:55 PM

MASTER'S

AI POSTER SPECIAL SESSION

Speaker

P **Presenter Withdrawn**

Presentation Withdrawn

11:00 AM – 12:55 PM

UNDERGRADUATE

AI POSTER SPECIAL SESSION

Speaker

P **Presenter Withdrawn**

SDSU's First Fin-Controlled Rocket

11:00 AM – 12:55 PM

UNDERGRADUATE

This project presents the design, simulation, and testing of an amateur fin-controlled rocket developed by the Aerospace Navigation and Control Society. The primary objective is to design a low-cost, student-built experimental platform that demonstrates active flight stabilization through closed-loop control of aerodynamic fins. The rocket is designed around a solid rocket motor and focuses specifically on roll-axis stabilization, a regime that is both experimentally tractable and highly illustrative of real aerospace control challenges.

The system integrates custom avionics, inertial sensing, and onboard control algorithms implemented on a microcontroller-based flight computer. Angular rate and acceleration data are processed in real time to estimate vehicle state, which is then used to command fin deflections via high-speed actuators. Control laws are derived using classical and modern control techniques, including proportional-integral (PI) control, and are tuned through simulation and ground testing prior to flight.

A key emphasis of the project is high-fidelity modeling. Aerodynamic forces and moments are derived from computational fluid dynamics (CFD) lookup tables rather than simplified coefficient-based models, allowing the simulation to capture nonlinear effects due to velocity, fin deflection, and changing flight conditions. These models are incorporated into a time-domain simulation environment that accounts for sensor noise, actuator limits, time delays, and variations in mass properties over the burn.

Beyond achieving stable flight, the project serves as an educational testbed for teaching systems engineering, control theory, and experimental validation. Students gain hands-on experience in requirements definition, hardware integration, software development, and iterative testing under real-world constraints. The long-term vision is to expand the platform to multi-axis control and more advanced guidance strategies, while maintaining accessibility for future student cohorts.

AI POSTER SPECIAL SESSION

Speakers

J **Jeffery Schroeder**
Lead Presenter | G - 9

J **Jared Maestri**
Co-Presenter | G - 9

Know Your Author: Does the AI Penalty Hold in Short Fiction?

11:00 AM – 12:55 PM

UNDERGRADUATE

As artificial intelligence systems enter creative domains, the “AI penalty” hypothesis predicts that audiences will devalue content labeled as AI-authored. We tested this in a preregistered 3 x 2 between-subjects experiment (N= 254 after exclusions). Participants were presented with one of two short AI-written stories (Endless Summer, Firefly), with randomized authorship labels (AI, Human, or None). After reading, participants rated enjoyment, creativity, originality, and recommendation on 7-point scales, and reported their perceived writing time and attitudes toward AI. Two-way ANOVAs/ANCOVAs with Bonferroni adjustment showed small, mostly non-significant label effects across outcomes. The only reliable raw contrast was a small AI< Human difference, (Cohen’s d= -0.42), in enjoyment for the story Firefly; however this was not robust after adjusting for AI positivity. Treating perceived time as a mediator (PROCESS Model 4, 5,000 bootstraps) revealed a consistent negative indirect effect: AI label→ shorter perceived time (less inferred effort) → lower enjoyment. Participants believed Human authors spent 23 times (back-transformed mean) longer than AI authors, and perceived effort positively predicted enjoyment (R^2 = .032, p = .010). AI positivity was a significant positive predictor of outcomes, while Positivity x Label was non-significant, suggesting the presence of a halo effect. A story-quality check (GLM controlling label) found no meaningful Firefly-Endless differences on creativity/originality. Exploratorily, 14% failed to recall the stated author (concentrated in Human x Firefly, 27% vs. 12% elsewhere, p=.012), implying limited label salience. We find no support for the AI-penalty in short fiction, under explicit labeling. Audience evaluations are driven by attitudes and inferred effort, with labels shaping enjoyment indirectly through perceived time.

AI POSTER SPECIAL SESSION

Speaker

Joselyn Cesare
Lead Presenter | G - 9

K - 2: Humanities, History, Literature, & Philosophy Exhibit (U/G) 1

11:00 AM – 1:00 PM | Location: Montezuma Hall

UNDERGRADUATE/GRADUATE

EXHIBIT

Speakers

Charlene de la Cruz
Lead Presenter | K - 2

Todd Bradley
Lead Presenter | G - 6

Love In a Hopeless Place

11:00 AM – 12:55 PM

UNDERGRADUATE

From the moment pen hit paper and love bloomed in the world, love letters became a sentimental artifact of expressing devotion that could be preserved for generations. Especially in times of desperation and vulnerability, love letters become a survival tool between soldiers and home, tying a meaning to life when it could come to an end. Previous research in love letters during wartime often separate letter contents from linguistic and grammatical fluctuations within the letters. Some scholars discover that subjects and expressed emotions are used to recreate comfort, while others focus on the methods of expression and how societal norms form these expressions. I will use letters from either side of the Civil War to track traumatic events alongside the emotions expressed and the change in soldiers' writing style through time. By combining syntax with sentiment and militaristic battle, we discover the importance of vulnerability when paired with communication and intimate connection.

EXHIBIT

Speaker

Charlene de la Cruz
Lead Presenter | K - 2

Presentation Withdrawn

11:00 AM – 12:55 PM

MASTER'S

EXHIBIT

Speaker

Presenter Withdrawn

L - 2: Theatre Presentation - Performance (Music/Dance)

11:00 AM – 1:00 PM | Location: Montezuma Theatre

UNDERGRADUATE/GRADUATE

PERFORMANCE

Speakers

Abigail Cosgrove
Lead Presenter | L - 2

Chloe Boatright
Lead Presenter | L - 2

Evan Vitiello
Lead Presenter | L - 2

Rebecca Murillo
Lead Presenter | L - 2

The Counterpane- An Explanation of a Dance Adaptation

11:10 AM – 11:35 AM

UNDERGRADUATE

Part dance, part poem, and part essay, this project is an adaptation of movement in the novel Moby Dick, and an experiment of different types of mediums as analytical essays. It explores how being in a state of exhaustion is where the mind is the least clear and the most available for change. In my essay on this project, I discuss three of the books chapters: "The Counterpane", "Stubb Kills A Whale", and "The Dart" and how they showcase a state of mind experienced by the main character, Ishmael, that lead to his ability to survive over the course of the novel. This project acts as both a catalogue and blueprint of my experience while reading the book, which is translated into my dance. By making an environment where I am able to feel the same character arc as Ishmael, I gain the same survival skills as him. In the dance, I am challenged with the task of first reading a list of movements from a notebook at a table and performing them sitting. Having never memorized the movements, reading comes as a survival skill required to do the dance "correctly". Then, I transpose and improvise ways to perform those same moves standing. At the end of the dance, I return to the desk and read my poem, which acts as the epiphany created by the labor so far. By not only having an essay to prove my thesis, but a physical score, I have linked my writing with my lived experience. Through embodying Ishmael, I am able to make a claim that is proved by a physical essay (the dance) that also acts as a claim about the mediums of dance and writing themselves. My association of the two calls into question the separation of the disciplines in the first place, and that by combining them, I am able to make a more informed and embodied thesis.

PERFORMANCE

Speaker

Abigail Cosgrove
Lead Presenter | L - 2

The Continuum of Deliberation

11:35 AM – 12:00 PM

UNDERGRADUATE

The Continuum of Deliberation, a phenomenon developed by American choreographer, dancer, and educator Nina Martin. In this continuum, she arranges predetermined, set choreography on one end, and spontaneous, improvised choreography on the other, offering dancers a spectrum in navigating the creative process. We focused specifically on the concept Skeleton, Fleshed Out, a sequence of choreographic methods that integrates both ends of the continuum within a single dance. We began by creating a dance phrase through the collection of gestural movements: some inspired by the performance Portal Amá, and others emerging as our responses to that work. These gestures combined both “on the grid” dance vocabulary and “off the grid” pedestrian movement, to which we layered choreographic elements such as changes of facing, levels, timing, and size. From this foundation, we explored “fleshing out” techniques to transform the skeleton dance phrase. A few of these include: pausing, repeating, slowing down, speeding up, and many more. The Skeleton, Fleshed Out process has dancers take one of two roles: the heartbeat and the blood. The heartbeat dancer maintains the integrity of the skeleton phrase, acting as a structural anchor, while the blood dancer experiments with the full range of fleshing-out techniques. The dancer as the heartbeat may “flesh out with limitations” such as pausing, slowing down, speeding up, or repeating, ensuring that the dancer in the role of the blood can always return to the phrase. In performance, these roles alternate: in the first run, Dancer A takes the heartbeat role while Dancer B takes the role of the blood, switching roles midway through, and in the second run, the alternation occurs again. Through this process, we are able to engage deeply with Martin’s continuum, experiencing firsthand how set and improvised material can coexist within a shared framework. This strengthens our understanding of the continuum of deliberation, and highlights the creative potential of how a dance can have live, role-based collaboration in a structured improvisation.

PERFORMANCE

Speakers

Chloe Boatright
Lead Presenter | L - 2

Sarah Prado Ascencio
Co-Presenter | L - 2

Nterpersonal

12:00 PM – 12:25 PM

UNDERGRADUATE

Our embodied research investigates human communication through movement, touch, sound, and language. My idea for this project originated in Contact Improvisation class spring of 2025 during a contact dance with Julia Elbert where throughout the beginning of it we had a casual conversation catching up on life. Something intrigued me about a kind of attention and listening that we were engaged in that was different to either form on its own. Starting May of 2025, myself and my peers have met twice a week to practice scores involving contact improvisation and conversation, both as separate forms and simultaneously. Starting late August of 2025, we began turning this research into a performance piece which was shown in early December 2025 in the Undone Showing as part of the SDSU dance program. During this process I have found that allowing sounds and speaking to come out as a part of my dancing, while challenging and inhibiting at first, with practice, can make improvisation feel more full bodied and authentic. And practicing these in a dance with other people yields interesting results; it allows us to get out of our moving habits and contact habits. This process has taught me a lot about pedagogy and dancemaking as well. Turning something completely practice and process based into something that is ready to be seen has been very interesting and challenging. This work is so important because with all of our recent technological advances, it becomes increasingly essential to maintain relationships and keep our knowledge of how to interact with one another. Things as simple as human connection, touch, and genuine conversation are beginning to get lost. Starting with the dance community, I aim to foster genuine connections through the practice of these forms.

PERFORMANCE

Speakers

E **Evan Vitiello**
Lead Presenter | L - 2

S **Sarah Prado Ascencio**
Co-Presenter | L - 2

Q **Quiela Meija Lopez**
Co-Presenter | L - 2

A **Andrea Ruiz Herrera**
Co-Presenter | L - 2

S **Samantha Segol**
Co-Presenter | L - 2

Finding Home – Advocating for Immigrant & Multi-Generational Latiné Voices in Musical Theater

12:25 PM – 12:50 PM

MASTER'S

In the industry of musical theater, Latiné voices have never had a steady footing in their viability on stage even as the largest ethnic group which makes up 20% of the United States population. Their presence in musical theater has fluctuated with the Broadway premier of shows such as In The Heights (2008) & Real Women Have Curves (2024) whose stories speak directly to conversations between generations of Latiné immigrants. However, the disparity remains as Latiné artists look to create work to amend this unbalance.

For nine years, the musical Finding Home has been in development as a story that strives to start a conversation about belonging to culture, lost ancestral relationships, and seeks to empower a generation who strives to continue the legacy they have inherited. This historically fictional show follows a young girl who embarks on a journey to connect with her own history to empower herself through the help of six spirits who bring that history to life. Synthesizing real, historical events to a varied musical score utilizing salsa, musical theater styles, punk rock & ballads highlights important conversations surrounding displacement and American policy.

Inspired by the world around us, Finding Home seeks to be a part of the solution to highlight the hypocrisy of American politics, humanizing & celebrating the strength of the Latiné community, and continue the legacy of the shows that have come before to open previously closed doors to invite diverse storytelling to the stage.

PERFORMANCE

Speaker

R **Rebecca Murillo**
Lead Presenter | L - 2

C - 1: Behavioral and Social Sciences (G) 4

1:00 PM – 3:00 PM | Location: Legacy Suite

GRADUATE

ORAL PRESENTATION

Speakers

A **Alan Minjares Arjona**
Lead Presenter | C - 1

Alejandra Torres Gomez

Jacqueline Zhang

PhD Student, JDP-LCD | San Diego State University

N

Nadia Hemmat

Lead Presenter | C - 1

S

Shubhi Sharma

Lead Presenter | C - 1

Politics, culture, and orthographic variation in TikTok and X/Twitter discourse

1:15 PM – 1:35 PM

MASTER'S

The Internet has allowed cybernetic users to construct artificial avatars and online personas whose images are reinforced by their actions, behavior, and even language production. Via language, this image isn't merely composed of the opinions being expressed on digital forums, but also the construction and manifestation of language itself. Orthographic variation is one of those outcomes that has been limited to the realm of short messaging service (SMS) in previous research; this modality restricts the scope of interpersonal communication to that which usually occurs between only two individuals. Expanding onto the Internet web allows for an analysis that is (1) platform-specific and (2) based on content impacting users' conscience of their digital footprint before a larger audience, which facilitates a deeper understanding of language choices. Using two distinct social media platforms, TikTok and X/Twitter, and two opposing forms of content that users engage with, politics and popular culture, a quantitative analysis was conducted to see if there was a greater gap in the number of orthographic "errors" made by users between platforms or between content. Furthermore, a qualitative analysis explained the distribution of ten modified categories of orthographic variation set by Tag et al. 2014 and the functions they served within the four digital "spaces" promote the concept of a curated online image. Results showed a greater gap in the amount of orthographic variations occurring between forms of content than between the digital platforms. Additionally, within the political sphere, variations function as self censorship, word length reduction, and sign duplication which signal behavior indicative of a cautious yet impassioned user image eager to make their knowledge evident. Within the sphere of popular culture, sign duplication and opinion insertion portray an expressive yet casual user image. These findings indicate that orthographic errors are subconscious choices that go beyond the intentions of quickness in production or by cause of carelessness or ignorance.

ORAL PRESENTATION

Speaker

A

Alan Minjares Arjona

Lead Presenter | C - 1

México's New Milpa: Unpacking the Processed Food and Beverage Epidemic

1:35 PM – 1:55 PM

MASTER'S

Indigenous populations in southern Mexico face disproportionate health challenges due to systemic oppression, leaving many vulnerable to poor health outcomes and limited medical care. In Oaxaca, childhood obesity has become an urgent public health concern, exacerbated by high consumption of Sugar-Sweetened Beverages (SSBs) and Ultra-Processed Foods (UPFs). In response, the state of Oaxaca has implemented the Anti-Junk Food Law banning UPFs and SSBs in schools. Shortly afterward, the Mexican Secretariat of Health implemented mandatory Front-of-Package (FOP) warning labels on UPFs and SSBs. This preliminary study explores how these policies have shaped food choices among Indigenous children and families. Using qualitative methods, including ethnographic observations, field notes, and unstructured open-ended interviews, the research examined product visibility of UPFs, availability across urban and rural communities, pricing, and consumer behaviors. Interviews with two physicians provided clinical perspectives on treatment challenges and the effectiveness of policy, while interviews with parents shared insights on dietary changes, food access, cultural influences, and policy awareness. Preliminary findings suggest that while FOP labels increase the visibility of nutritional risks, they have a limited impact on food purchasing behaviors. UPFs remain widely accessible, deeply embedded in daily life, and aggressively marketed by corporate branding. Physicians emphasized that labeling alone cannot address obesity without comprehensive education, reinforced regulatory enforcement, and improved access to nutritious foods. Parents expressed concerns about the growing disconnect from traditional Milpa-based diets, children's early exposure to UPFs, and the dominance of industrialized food systems. Although current policies represent important steps toward improving health literacy, more comprehensive, culturally tailored strategies are needed to reduce obesity and UPF and SSB consumption among Indigenous communities.

ORAL PRESENTATION

Speaker

Alejandra Torres Gomez

Do Children With DLD Know When They Know? Confidence and Neural Engagement During Word Learning

1:55 PM – 2:15 PM

DOCTORAL

Purpose: Developmental language disorder (DLD) is a neurodevelopmental disorder characterized by unexplained difficulty in understanding and using language. In particular, children with DLD have difficulty building rich semantic knowledge through implicit word learning relative to their typically developing (TD) peers. However, children's awareness of their weaknesses in word knowledge has not been directly assessed alongside objective learning outcomes and depth of semantic relationships. The N400, an electroencephalography (EEG) component associated with semantic processing, allows us to examine neural engagement during learning. This study combines behavioral responses, EEG recordings, and confidence ratings to better understand the relationship among word learning success, depth of semantic representations, and metalinguistic awareness during word learning in DLD.

Method: Twelve children with DLD and thirteen TD children (8;0-13;11) completed a word learning task in which they listened to three sentences that ended in the same nonsense word such that the context either converged in a single meaning (Meaning condition, n = 50) or did not converge in meaning (No Meaning condition, n = 50). After each sentence triplet, they guessed the meaning of the word and rated their confidence in their response (low, medium, high). The N400 component was calculated in the Meaning condition by time-locking EEG recordings to the nonsense word of the final sentence.

Findings: Children with DLD made more errors in identifying the meaning of the nonsense word despite being equally confident as their TD peers. Critically, while TD children showed similar neural engagement across confidence ratings, children with DLD displayed a larger N400 response for medium confidence responses, which reflects a discrepancy between metalinguistic awareness and neural engagement. We interpret this as children with DLD disengage when unsure, engage in effortful processing when at medium confidence, and overestimate their word knowledge when they feel confident.

ORAL PRESENTATION

Speaker

Jacqueline Zhang

PhD Student, JDP-LCD | San Diego State University

Assessing Health Needs and Unmet Health Needs for In-Transit Migrant Women at the U.S.–Mexico Border

2:15 PM – 2:35 PM

DOCTORAL

Background: In-transit migrant women face barriers to healthcare such as discrimination, language obstacles, and lack of documentation. Social support may protect against negative health outcomes, yet its role across the primary care "cascade"–identifying a health need, seeking care, receiving care, and having needs met by care received– remains understudied. This study examined associations between social support, resilience, and four cascade of care outcomes:1) having a health need, 2) seeking care, 3) receiving care, and 4) having an unmet health need. Methods: Cross-sectional data were used from harmonized interviewer-administered questionnaires with in-transit women (n=249) in Tijuana, Mexico (February 2024–November 2025) collected through a community-academic partnership. The Multidimensional Scale of Perceived Social Support (MSPSS) and Brief Resilience Scale (BRS), assessing current support and resilience, were analyzed as predictors using modified Poisson regression. Four cascade of care items in the past two months served as outcomes. Adjusted models controlled for age, time since arrival, region of birth, income, Indigenous ancestry, marital status, and education. Results: Among 249 participants, 63.6% reported health needs in the past two months and 9.1% an unmet need. Medium-high support was significantly associated with lower prevalence of a health need (adjusted prevalence ratio (aPR)=0.79, 95% CI: 0.65–0.95). MSPSS was not associated with seeking care (aPR=0.85, 0.66–1.09), receiving care (aPR=0.77, 0.61–0.98), and showed a nonsignificant protective association with unmet needs (aPR=0.64, 0.38–1.09). BRS was not associated with outcomes: health needs (aPR=1.00, 0.99–1.01), seeking care (aPR=1.01, 0.99–1.02), receiving care (aPR=1.00, 0.99–1.01), or unmet needs (aPR=0.95, 0.90–1.01). Conclusions: Higher support was associated with lower relative prevalence of health needs, suggesting a protective role. However, social support alone was insufficient to complete the cascade of care. Interventions that build on social networks may advance the cascade.

ORAL PRESENTATION

Speaker

Nadia Hemmat

Lead Presenter | C - 1

Assessing drivers for secondary school leaving among young women in low-and middle-income countries

2:35 PM – 2:55 PM

DOCTORAL

Introduction: Over the past decades, primary schooling has increased in developing countries, whereas secondary school completion rates remain low. The gender gap in children leaving secondary school is also more compared to primary schooling, leading to high illiteracy rates, increased teenage pregnancies, maternal and child mortality. This study aims to assess health-related reasons for secondary school leaving among young women. Methods: We analyze nationally representative data from the Performance Monitoring for Action surveys (2021-2024) in 8 countries—Burkina Faso, Democratic Republic of Congo, Cote d'Ivoire, India, Kenya, Niger, Nigeria, Uganda (N= 6,753). Eligible respondents were females aged 15-25 years old. STATA was used to generate descriptive statistics and regression analyses for secondary school leaving across countries. Results: The average age was 21.2 years (95% CI: 21.2 – 21.3). Respondents on average completed 5.1 years (95% CI: 5.1 – 5.2) of schooling and left school at 15.9 years (95% CI: 15.8 – 16.0). Health-related factors for school leaving accounted for 20.8% (95% CI: 19.9 – 21.8) Common health-related reasons for school leaving were pregnancy (10.1%); early marriage (8.1%); illness (2.6%); and menstruation and hygiene (<1%). Health-related reasons were most frequently reported in Kenya (30.1%), India (23.2%), and Uganda (18.6%). In multivariable regression analyses, rural residence, older age, and living in less wealthy households were significantly associated with increased odds of leaving school due to health reasons. Implications: More than 1 in 5 young women left school due to gendered health disparities across the 8 countries. Findings from this study can inform interventions and policies to increase secondary school attainment by addressing health-related barriers for young women.

ORAL PRESENTATION

Speaker

S **Shubhi Sharma**
Lead Presenter | C - 1

C - 10: Behavioral and Social Sciences (U) 4

1:00 PM – 3:00 PM | Location: Presidential Suite

UNDERGRADUATE

ORAL PRESENTATION

Speakers

A **Aidan Monarrez**
Lead Presenter | C - 10

A **Anna Keaveny**
Lead Presenter | C - 10

Camila Canez

F **Federico Avalos**
Lead Presenter | C - 10

I **Ivan Martinez**
Lead Presenter | C - 10

Where We Feel Safe: A Study of Perceived Safety in My Apartment Complex

1:15 PM – 1:35 PM

UNDERGRADUATE

This project examines how residents perceive safety around the apartment complex where I live by using a method called fear mapping, which focuses on the emotional and social experiences of a place rather than relying strictly on crime statistics. While official crime reports offer one version of safety, they do not show how people actually feel when walking through their environment. Fear mapping captures personal comfort levels, daily routines, and the subtle cues that make a space feel either welcoming or threatening.

To collect this data, participants were given a blank map of the complex and its surrounding streets and were asked to mark unsafe areas in red and safe areas in green. They also provided short written explanations describing why they chose those spots. Even though the maps were completed individually, strong patterns quickly emerged. Poorly lit, isolated, neglected areas such as the park edge behind the complex, the abandoned building above the post office, and the dim corner near the gas station were consistently marked as unsafe. In contrast, well lit and active areas, including the central courtyard walkway, the gym entrance, and the pool area, were repeatedly marked as safe.

These repeated markings suggest that residents share a collective emotional experience of the complex that is shaped far more by environmental design than by actual reported crime. The presence of lighting, visibility, social activity, and upkeep strongly influences where people choose to walk, how they move at night, and which areas they avoid altogether.

The findings highlight the importance of environmental psychology and demonstrate how fear mapping can identify specific zones where improvements could immediately enhance comfort and safety. Future research could compare these perceptions to real crime data, explore differences across demographics such as gender and age, or test whether environmental changes such as increased lighting or better maintenance reduce fear over time. Ultimately, this project shows that understanding where and why people feel

ORAL PRESENTATION

Speaker

A

Aidan Monarrez

Lead Presenter | C - 10

Constructing a Candidate: Identity Creation In Student Government Presidential Candidate Statements

1:35 PM – 1:55 PM

UNDERGRADUATE

While much work has been done regarding identity construction within political discourse and self-promotional genres (Schubert, 2021; Haji, 2023), such research has yet to focus on student government presidential candidate statements produced at the university level. This study aims to define the social and rhetorical purpose of student candidate statements through a genre and move analysis, and examine how the topicalization of information at the clausal level contributes to identity construction through an analysis of theme and rheme choices using systemic functional linguistics (Halliday, 1994; Hyland, 2005). Twenty four presidential candidate statements collected from public websites of four universities within the California State University system were analyzed.

The analysis revealed that this genre contained four rhetorical moves that established the communicative purposes of this genre. In these moves they introduced themselves, established their credibility through discussing qualifications, described their presidency platform in terms of future plans and, finally, concluded the statement with a call to action. The results of the move analysis found that candidates situate themselves in the position of president primarily through a focus on their future plans and goals. They also placed significance on presenting themselves as a readily prepared candidate by discussing previous achievements and how these might qualify them to lead the student body. The Theme/Rheme analysis shows evidence of the self-promotional nature of this genre as seen through a high usage of the first person pronoun I as a frequent theme of main clauses. The thematic choices also revealed how students foregrounded different identities through their choice of themes in the key rhetorical moves. The results from this study add to our understanding of the rhetorical structure of student candidate statements and identity construction in student self-promotional genres.

ORAL PRESENTATION

Speaker

A

Anna Keaveny

Lead Presenter | C - 10

Defying Diet Narratives: Content Analysis of Diabetes Nutritional Advice on Social Media

1:55 PM – 2:15 PM

UNDERGRADUATE

This study aims to analyze disordered-eating cues in social media content directed at people with Type 1 diabetes. Previous findings suggest that exposure to specific types of social-media content can exacerbate disordered-eating behaviors for the general population. Greater exposure

to weight- loss content online has been linked to negative body image and disordered- eating behaviors, regardless of the duration of exposure (Sanzari et al, 2023). Additionally, people with Type 1 diabetes are more likely to struggle with disordered eating patterns (e.g., Hanlan et al., 2013). Despite higher levels of disordered eating among people with Type 1diabetes, there is limited research examining specific contributors and risk factors for this increased prevalence. In the current study, it is hypothesized that food-related social- media posts for people with Type 1 Diabetes will include language and/or behaviors indicative of disordered eating. The study is a cross-sectional descriptive analysis of 180 TikTok videos coded between November 2025 and January 2026 using search terms related to food, nutrition, dieting, and Type 1 diabetes. Videos are coded for disordered- eating cues, specifically food restriction, insulin restriction/manipulation restriction/manipulation, weight preoccupation, and binging; coding criteria were developed from the Diabetes Eating Problem Survey (Markowitz et al, 2009). Data will be analyzed in February 2026. Limitations, implications, and future directions will be discussed.

ORAL PRESENTATION

Speaker

Camila Canez

The struggles for youth in underserved communities.

2:15 PM – 2:35 PM

UNDERGRADUATE

I will be conducting research on how the government does not have enough money invested towards prevention of crime, in regards to youth in the latinx or other minority community . When we start to analyze the money spent on the penal system it is over a billion dollars a year. That number vastly differs from what is spent on youth activities. In more recent times with our current administration we are also noticing the budget cuts to educational benefits. Once again the individuals who usually receive these benefits are Latinx or other minorities. It has been proven that when individuals lack activities to participate in they easily fall into a life of crime. What I hope to prove is that we need more funding for our youth activities. I am not trying to discredit the need for rehabilitation for those who have fallen into the life of crime. Yet what if we can lower the number of fallen by focusing on more preventive measurements.

-Federico Avalos

ORAL PRESENTATION

Speaker

F

Federico Avalos

Lead Presenter | C - 10

Adverse Childhood Experiences, Biculturalism, Self esteem, and negative outcomes

2:35 PM – 2:55 PM

UNDERGRADUATE

Adverse childhood experiences (ACEs) are strongly associated with negative developmental, psychological, and behavioral outcomes. Prior research shows that ACEs decrease academic resilience (Gottron et al., 2024), reduce self-esteem (Zhang et al., 2024), and increase substance use severity (Leza et al., 2021). Among Latino college students, cultural factors such as acculturation and enculturation may further shape these outcomes (Woloshchuk et al., 2022; Cano et al., 2020). This study examines the relationships between ACEs, academic resilience, self-esteem, and substance use among students at a border-town university with a predominantly Latino population, while assessing culturalism as a potential mediator. It is hypothesized that higher ACE levels will predict lower academic resilience and self-esteem, as well as greater substance use. Acculturation and enculturation are expected to mediate these associations, such that students with stronger bicultural adaptation exhibit reduced negative effects of ACEs. Using a quantitative, cross-sectional design, data will be collected from approximately 100 undergraduate students. Participants will complete a questionnaire packet including the Adverse Childhood Experience Questionnaire (CDC, 1998), a modified Academic Success Inventory for College Students (Prevatt et al., 2011), the Rosenberg Self-Esteem Scale (Rosenberg, 1979), the Acculturation Rating Scale for Mexican Americans–II (Cuellar et al., 1980), the Alcohol Use Disorders Identification Test (WHO, 1993), and self-report items assessing alcohol and marijuana use. Regression analyses will be conducted to assess the relationships among the variables. This study is important because it highlights the lasting impact of childhood adversity on the academic and psychological functioning of Latino college students, a population underrepresented in ACE research. By identifying acculturation and enculturation as a potential protective factor, the findings may inform culturally responsive interventions that better support students affected by early adversity.

ORAL PRESENTATION

Speaker

I

Ivan Martinez

Lead Presenter | C - 10

C - 11: Behavioral and Social Sciences (G) 7

1:00 PM – 3:00 PM | Location: Leon Williams Room, Love Library 431

GRADUATE

ORAL PRESENTATION

Speakers

Alexandra Nguyen
Lead Presenter | C -11

Elissa Gomez
Lead Presenter | C -11

Jasmine Barnes
Lead Presenter | C -11

Nithya Narayanan
Lead Presenter | C -11

Ethical, Legal, and Social Issues in GeoAI: A Case Study of San Diego's Unsheltered Population

1:15 PM – 1:35 PM

MASTER'S

This study discusses privacy and safety concerns, along with potential solutions, of using GeoAI applications to analyze individual-level image and location data through a case study of the unsheltered population in San Diego County.

First, demographic information from the Los Angeles Homeless Services Authority and San Diego State University indicated that within the unsheltered population: almost three-quarters are male, Black people/African-Americans are vastly overrepresented relative to their overall population, and the top stated reasons for homelessness are primarily employment- and finance-related. In addition, the Supreme Court case City of Grants Pass v. Johnson (06/28/2024) has held that local governments imposing penalties for camping on public land does not violate the Eighth Amendment's Cruel and Unusual Punishments Clause. There are emerging discussions about whether abatements/camping sweeps violate the Fourth Amendment protection "against unreasonable searches and seizures" and Americans with Disabilities Act.

Next, geoprivacy and ethical concerns arose from the following openly accessible sources: aerial- and street-level images from Google Street View; individual, point-level data of user-submitted encampment reports to San Diego's 3-1-1 helpline; and individual, point-level data from Downtown San Diego Partnership's Unsheltered Count. For example, encampment report information made available to the public included exact addresses and geographic coordinates, which compromises unsheltered individuals' locational privacy.

Finally, the point-level data was aggregated in ArcGIS Pro using Optimized Hot Spot Analysis, Aggregate Points Analysis, and Kernel Density with the goal of balancing spatial accuracy with locational privacy. Findings indicated that an optimal spatial boundary was a distance of 50 meters for Optimized Hot Spot Analysis and Kernel Density and 100 meters for Aggregate Points Analysis. Of the three spatial aggregation methods, Kernel Density (due to its heat map structure) was determined to be the best technique.

ORAL PRESENTATION

Speaker

Alexandra Nguyen
Lead Presenter | C -11

Insights from a Framework-Guided Process Evaluation of a Mother-Daughter Wellness Program

1:35 PM – 1:55 PM

DOCTORAL

Background: Community-based public health interventions often include process evaluation plans for the purpose of identifying barriers and facilitators to implementing behavioral health programs in real-world contexts. Yet, these evaluations are often not grounded in guiding public health frameworks, leading to arbitrary and inconsistent assessment of the factors that can influence program effectiveness. Examples of how to apply framework-guided process evaluations are thus necessary for informing the systematic measurement of key process constructs in community health interventions.

Methods: The Process Evaluation of Public Health Interventions framework (2002) and the Program Evaluation framework (2010) guided the comprehensive process evaluation of a 10-week school-based, mother-daughter wellness program. Key process constructs from the 2002 framework—context, recruitment, reach, dose-delivered, dose-received, and fidelity—were measured throughout the program using a participant recruitment and enrollment dashboard, session attendance tracker, weekly tracking of dyad's homework completion, facilitator fidelity checklists, and random observations of program facilitators' session delivery. The 2010 framework informed the assessment of program acceptability among participants, barriers and facilitators to program delivery by program implementers, and perceptions of program sustainability among community partners. Data on these three constructs will be collected using multi-methods, including quantitative surveys and semi-structured qualitative interviews. Preliminary results and adaptations to the evaluation plan based on lessons learned during the program's first wave of implementation will be presented.

Conclusion: This process evaluation's development, results, and adaptations can offer a model for designing and implementing framework-guided evaluations in community-based interventions to streamline the assessment of implementation processes and improve intervention programming.

ORAL PRESENTATION

Speaker

Elissa Gomez
Lead Presenter | C -11

Unclutch Your Pearls: Using Narrative Medicine to Improve Sexual Health Across the Lifespan

1:55 PM – 2:15 PM

DOCTORAL

Background

Sexuality in later life remains highly stigmatized, as ageism, HIV-related stigma, and intersecting social identities shape access to care and provider engagement. Simultaneously, HIV rates among older adults are increasing, highlighting the need to address sexual health across the lifespan. Despite persistent disparities in HIV incidence and health outcomes, limited evidence exists to guide effective sexual health education, prevention, and care strategies for aging populations. Professional training programs often inadequately address the intersections of sexual health, HIV, and aging, reinforcing provider discomfort and implicit bias. Emerging research highlights the need to normalize sexuality across the life course and recognize how intersecting identities exacerbate inequities in care. Unclutch Your Pearls is an educational training grounded in Narrative Medicine that uses health communication film to enhance HIV knowledge, promote reflective learning, and support inclusive, age-conscious practice among emerging health and social service professionals.

Methods

We analyzed six open-ended survey responses completed by professional students following participation in Unclutch Your Pearls. Trainings were conducted in partnership with academic and community-based organizations in Los Angeles and San Diego, California. Data were analyzed using thematic analysis in NVivo 15 by two independent scientists.

Results

Between December 2023 and November 2025, 308 participants completed the training. Participants were primarily social work students (95%), under age 30 (69%), and identified as Hispanic/Latino (44%), Non-Hispanic White (28%), Asian/Pacific Islander (20%), or Black/African American (8%). Six themes emerged: (1) awareness of implicit bias, including sexual ageism and HIV-related stigma; (2) normalization of sexual health communication across the lifespan; (3) humanization of people living with HIV through increased empathy and attention to quality of life; (4) perceived effectiveness of narrative and experiential learning in reducing stigma and pro

ORAL PRESENTATION

Speaker

Jasmine Barnes
Lead Presenter | C -11

Characterizing fatalism in people who use drugs and its role as a mediator between social contexts

2:15 PM – 2:35 PM

DOCTORAL

Introduction: The overdose epidemic and toxic illicit drug supply expose people who use drugs (PWUD) to external factors that may erode perceived control over their lives. “Fatalism” (the philosophy that all events are predetermined and unchangeable) has been identified as a determinant of low healthcare engagement. We posit that fatalism can also be leveraged to understand why PWUD may not engage with harm reduction services. Exposure to overdose mortality among peers causes changes in both attitudes toward death and use of harm reduction among PWUD in qualitative studies. Methods: The study used baseline survey data from the MI-CHANCE trial, which is testing an intervention promoting safer drug use behaviors among PWUD using opioids and/or methamphetamine in San Diego (n=448). Outcomes included binary self-reported adoption of specific harm reduction practices (such as naloxone carrying and supervised consumption) in the last six months. Fatalism toward overdose was measured with a six item Likert scale adapted from a validated instrument developed by Straughan and Seow. Our exposure of interest was lifetime fatal overdoses in one’s personal network. We measured associations between the exposure of interest, fatalism, and adoption of harm reduction behaviors using logistic regression. Our mediation analysis used linear and logistic regression to understand fatalism's role as a mediator between the exposure of interest and engagement in harm reduction among PWUD. Results: Exposure to in-network overdoses was not associated with use of harm reduction practices or fatalism. Increased fatalism predicted reduced self-reported injection drug use (IDU) (aOR:1.27, 95% CI: 1.14-1.40) and increased use of any harm reduction practices (aOR: 1.26, 95% CI: 1.04-1.53). Fatalism did not mediate the relationship between the exposure of interest and harm reduction engagement. Conclusions: This is the first study to quantify fatalism among PWUD and related increases in harm reduction use. Fatalism among PWUD may lead to awareness of overdose risk (to be explored in future work).

ORAL PRESENTATION

Speaker

Nithya Narayanan
Lead Presenter | C -11

C - 2: Biological and Agricultural Sciences (G) 2

1:00 PM – 3:00 PM | Location: State Suite

GRADUATE

ORAL PRESENTATION

Speakers

Alyssa Head
Lead Presenter | C - 2

Erik Christy
Lead Presenter | C - 2

Judy Figueroa
Lead Presenter | C - 2

Mauricio Salazar
Lead Presenter | C - 2

Samuel Wilson
Lead Presenter | C - 2

Lizards in the Hot Seat: the evolution of thermal traits in populations of Podarcis siculus

1:15 PM – 1:35 PM

MASTER'S

Invasive species are a major threat to global biodiversity. For ectothermic species, temperature strongly influences survival, performance, and reproduction, making thermal physiology a critical factor in determining invasion success. We investigated whether an invasive population of Podarcis siculus, introduced approximately 30 years ago, has undergone shifts in essential thermal traits that may facilitate adaptation to a milder climate allowing them to outcompete native species. We quantified four key traits: optimal temperature for sprint performance (Topt), preferred body temperature (Tpref) using a laboratory thermal gradient, and critical thermal minima and maxima (CTmin and CTmax) based upon righting response. These data were compared to those collected from the species' native population to test whether changes in thermal tolerance or performance have occurred since introduction. Our results provide insight into whether this invasive population has shifted thermal traits to better match local environmental conditions within a relatively short evolutionary timescale. Understanding how invasive species respond to abiotic constraints such as temperature will improve our ability to predict invasion success and inform management strategies aimed at limiting their establishment and spread.

ORAL PRESENTATION

Speaker

Alyssa Head
Lead Presenter | C - 2

Chemically Enhanced Epigenetic Reprogramming of The Naked Mole-Rat

1:35 PM – 1:55 PM

MASTER'S

The naked mole rat (NMR) lives 30-40 years, far exceeding the 2-3 year lifespan of mice, a difference attributed in part to exceptionally stable epigenetic regulation. A striking example of this stability is that OSKM overexpression, which readily produces iPSCs from mouse skin fibroblasts (MSFs), fails to reprogram NMR fibroblasts. MSFs therefore serve as the ideal control: by comparing a system where OSKM is sufficient to one where it is not, we can identify the additional epigenetic safeguards that maintain NMR epigenetic stability.

Chemical reprogramming studies show that certain molecules can open chromatin, promote MET, inhibit lineage-stabilizing pathways and activate early pluripotency networks. Therefore, we raise a central question of whether these chemicals enhance OSKM driven reprogramming of NMR skin fibroblasts and in doing so can they reveal the epigenetic barriers that block dedifferentiation. These barriers reflect the protective systems underlying the NMR's epigenetic stability and likely contribute to their exceptional longevity.

I hypothesize that combining OSKM ectopic expression with a targeted chemical cocktail will overcome the unusually tight epigenetic constraints in NMR cells by increasing OSKM accessibility and unlocking pathways that are otherwise repressed in this long-lived species. Using inducible OSKM MSFs as a positive control, NMR fibroblasts were exposed to OSKM alone versus OSKM plus staged chemical conditions.

Each successful condition will reveal which molecular barriers were relieved. Working backward from the chemicals that "unlock" reprogramming will allow us to map the mechanisms that maintain NMR epigenetic stability. Additionally, establishing a reliable chemically enhanced iPSC production protocol in the NMR will enable the creation of many iPSC derived NMR tissues, allowing tissue-specific investigation into how resilient epigenetic maintenance supports their remarkable longevity.

ORAL PRESENTATION

Speaker

Erik Christy
Lead Presenter | C - 2

Volatile Profiles Characterization of Commercial Vegan Tuna Products

1:55 PM – 2:15 PM

MASTER'S

Plant-based seafood products are increasingly gaining popularity with vegan and health conscious consumers. Plant-based seafood products are composed primarily of pea, wheat and soy proteins. Alternative protein products are formulated to replicate the taste, texture, and aroma of conventional seafood. Until now, the studies about plant-based seafood mostly concentrated on texture, convenience and sustainability (Mahmud, Valizadeh & Oyom, 2024) . There are very few studies on identifying volatile organic compounds (VOC) in plant based seafood in comparison to actual seafood which are important contributors to the aroma and flavor of seafood (Mei et al. 2024). To characterize the volatile profile using plant based tuna, Gas Chromatography-Olfactometry-Mass Spectrometry (GC-O-MS) was used to isolate individual volatile compounds, determine which compounds are odor-active, and identify their chemical structures. By linking sensory data (odor quality and intensity) with analytical data (retention time and mass spectra), GC-O-MS provides a direct correlation between chemical composition and sensory impact. This approach is critical for flavor research, food quality assessment, aroma profiling, and volatile organic compound (VOC) identification. In order to determine the best extraction method for identifying VOCs in plant based tuna, three techniques were compared to determine the best method. Thin-Film Solid-Phase Microextraction (TF-SPME), Stir Bar Sorptive Extraction (SBSE), and Thermal Extraction (TE), were performed for analysis.

ORAL PRESENTATION

Speaker

J **Judy Figueroa**
Lead Presenter | C - 2

BIO-INSPIRED MINING OF CRITICAL MINERALS

2:15 PM – 2:35 PM

MASTER'S

Critical minerals are essential for technological advancements in renewable energy, powering everything from electric car batteries to wind turbines. However, mineral production is falling short of global demand, with estimates suggesting that conventional mining must increase by 20 times to meet future needs. Furthermore, traditional mining generates toxic waste that threatens environmental sustainability and undermines the long-term value of renewable energy solutions. In light of these issues, innovative biomining technologies have become increasingly important. Diverse microorganisms, such as methane-consuming bacteria (methanotrophs), possess unique abilities to recover and absorb critical materials from their environments. In the C1-LAB, we investigate the molecular mechanisms that enable methanotrophs to extract high-value minerals. By understanding and leveraging these biological systems, we aim to advance strategies for sustainable recovery of essential materials. My role in this initiative involves optimizing cell-surface assays for protein immobilization to improve metal uptake in Methylotuvimicrobium alcaliphilum 20ZR, utilizing Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) alongside biosensors for comprehensive validation.

ORAL PRESENTATION

Speaker

M **Mauricio Salazar**
Lead Presenter | C - 2

City Life: Behavioral Shifts in Urbanized Geckos

2:35 PM – 2:55 PM

MASTER'S

Urban environments impose novel selective pressures that can alter behavior and morphology in species that successfully exploit human-modified habitats. In this study, I examined two commonly introduced and urban-adapted geckos; Tarentola mauritanica and Hemidactylus turcicus. I measured basic morphological traits and fitness and quantified behavior such as aggression, timidness, or wariness. For each species I conducted field work across an urbanization gradient within their native ranges as well as within their urban-restricted introduced ranges. This framework allows us to compare through environment, across the globe, and between species. Preliminary results suggest significant differences in morphology and defense behavior between native and introduced populations, highlighting the effects of urbanization and the adaptability of urban species.

ORAL PRESENTATION

Speaker

S **Samuel Wilson**
Lead Presenter | C - 2

C - 3: Behavioral and Social Sciences (G) 5

1:00 PM – 3:00 PM | Location: Lipinsky Hospitality Suite (SSW 1608)

GRADUATE

ORAL PRESENTATION

Speakers

J **Jackson Perry**

Jordan Siratt
Lead Presenter | C - 3

Mara Zajac
Lead Presenter | C - 3

Miraquel Ridenhour
Lead Presenter | C - 3

Presentation Withdrawn

1:15 PM – 1:35 PM

MASTER'S

ORAL PRESENTATION

Speaker

Presenter Withdrawn

Headstrong: Concussion Burden and Criminal Legal Outcomes in the NFL

1:35 PM – 1:55 PM

MASTER'S

Limited research on NFL players and arrests has focused on comparing players to the general population using publicly accessible crime data and or examining social differences within player samples. Yet an important aspect of understanding NFL player arrests is the disproportionately high incidence of head trauma among professional football players relative to the general public. While fully capturing how head trauma affects each player individually is unlikely, a better understanding of biological influences on behavior is critical for interpreting differences in NFL arrest outcomes. In this study, we analyze publicly available data on documented concussions and arrests for 6,201 NFL players from 2010 to 2020 to test whether concussion history is associated with arrest risk. Our results suggest that players with a concussion history are more likely to be arrested than those without, and the likelihood of arrest increases for players with multiple documented concussions. Associations for violent arrest were in a similar direction but did not reach statistical significance. These findings suggest that head injury is an under-researched aspect of the variation in NFL players' criminal justice involvement, and incorporating neurobiological risk is important for understanding differences in NFL behavioral outcomes.

ORAL PRESENTATION

Speaker

Jackson Perry

Pass the Salt: The Intergenerational Cycle of Childhood Trauma in Families Reported to CPS

1:55 PM – 2:15 PM

MASTER'S

Traumatic events experienced in childhood are known as adverse childhood experiences (ACES) and can have life-long impacts on various health-related outcomes (Felitti et al., 1998). Researchers have explored the negative impacts of ACES on mental health (Greeson et al., 2014; Archuleta et al., 2024). However, research on the generational influence of ACEs on children's mental health outcomes is limited. This study explores the impact of intergenerational trauma in families referred to child protective services (CPS) using inferential statistics to determine associations between parent history of child maltreatment and child mental health symptoms. This study uses a sample of 101 mother-child dyads from a larger study on the efficacy of an attachment-based intervention in families who were identified by CPS but whose children remained in the biological home. Mothers completed the Childhood Trauma Questionnaire (CTQ) at the baseline home visit when children were about 10 months old, and the Child Behavior Checklist (CBCL) when children were about 3 years old. ANCOVA analyses controlling for child age, gender, and intervention were used to examine differences in children whose mothers had been exposed to childhood trauma and those who were not exposed. There was no significant difference on the CBCL for children whose mothers were exposed to physical abuse, psychological abuse, sexual abuse, and emotional neglect. However, children whose mothers were exposed to physical neglect showed significantly higher levels of oppositional defiance ($M=3.92$, $SD=2.91$) compared with children whose mothers were not exposed ($M=2.32$, $SD=1.97$; $F(1, 90)=7.11$, $p<.009$). Children whose mothers were exposed to physical neglect also showed significantly higher levels of aggression ($M=11.94$, $SD=7.31$) compared with children whose mothers were not exposed($M=8.97$, $SD=5.33$; $F(1, 90)=4.04$, $p<.047$). Results emphasize possible links across generations of lasting impacts of trauma exposure. This highlights the importance of early intervention in families impacted by multigenerational maltreatment.

ORAL PRESENTATION

Speaker

Jordan Siratt
Lead Presenter | C - 3

The Role of Influencer Marketing and Online Skincare Trends in Spreading Misinformation

2:15 PM – 2:35 PM

MASTER'S

In the rapidly growing online skincare economy, influencer-driven advice now shapes acne treatment decisions more powerfully than traditional medical sources. The purpose of this review is to understand why audiences rely on influencers for acne advice, how influencers cultivate credibility, and how platform algorithms increase misleading content. Across studies, three major patterns emerged: (1) audiences frequently adjust their acne treatment behaviors based on influencer content, even when it contradicts dermatological advice; (2) influencers rely on perceived authenticity, attractiveness, and engagement-driven tactics that blur distinctions between expertise and marketing; (3) platform algorithms reward viral skincare content, accelerating the spread of unverified or harmful recommendations. The literature review highlights a growing tension between medically accurate information and highly persuasive influencer culture. The review exposes key gaps, including limited knowledge about lasting behavioral effects, limited algorithm transparency, and variation in credibility assessments across user groups. Future studies should focus on developing practical interventions, refining influencer claim regulations, and creating platform-level systems that prioritize accurate, evidence-based dermatology content.

ORAL PRESENTATION

Speaker

Mara Zajac
Lead Presenter | C - 3

Narrative Processes in Digital Extremism: Linking Persuasion Mechanisms to Disengagement Pathways

2:35 PM – 2:55 PM

MASTER'S

This literature review examines how narrative mechanisms operate in counter-violent extremist (CVE) narratives to shape persuasive influence, psychological reactance, and the conditions that support behavioral disengagement from extremist ideology after online exposure. In today's globalized information environment, extremist content has increasingly moved from the fringes of society into mainstream discourse. Research shows that extremist organizations leverage rich narrative structures that reduce counterarguing, promote identity alignment, and cultivate belonging. However, CVE campaigns often fall short. Three themes consistently emerge across the literature: ambiguity in how narratives are defined, weak integration of communication theory into CVE practice, and limited empirical evidence linking exposure to CVE narratives with meaningful attitudinal and behavioral outcomes. This review conceptually connects the absence of key narrative mechanisms such as transportation, identification, and perceived realism in CVE campaigns with their reduced efficacy, highlighting how these omissions overlook processes that support behavioral disengagement from extremist worldviews.

ORAL PRESENTATION

Speaker

Miraquel Ridenhour
Lead Presenter | C - 3

C - 4: Education (U/G) 1

1:00 PM – 3:00 PM | Location: Park Boulevard

UNDERGRADUATE/GRADUATE

ORAL PRESENTATION

Speakers

Daniela Ortega-Ramos
Lead Presenter | C - 4

Daniela Hernandez
Lead Presenter | C - 4

Sierra Vakili
Lead Presenter | C - 4

Antonio Romo
Lead Presenter | C - 4

Culturally Relevant Experiential Learning & Its Impact for Women in STEM

1:15 PM – 1:35 PM

UNDERGRADUATE

Research shows that women remain underrepresented in science, technology, engineering, and mathematics (STEM) fields. Beginning in elementary school and continuing into the workplace, women experience gendered stereotypes, limited access to STEM role models, and environments in education that ignore or undermine their cultural identity and life experiences (Brickhouse, 2001& Britton 2017). Even among women who have shown interest, motivation, and academic achievement in STEM, these barriers contribute to the continuous withdrawal of women from STEM pathways.

This literature review seeks to understand frameworks that can be implemented to support the retention of women in STEM. Databases such as Google Scholar and SDSU OneSearch were used to find articles, while Zotero and NVIVO, were used to organize and code article themes. Keywords included STEM, women, discrimination, Experiential Learning, Culturally Relevant Pedagogy, Culturally Relevant Experiential Learning, primary education, higher education, and STEM workplaces, which yielded a total of 14 articles that fulfilled review criteria.

The review focuses on Culturally Relevant Experiential Learning (CREL) and its potential to increase women's STEM engagement. CREL involves intentionally engaging students through concrete experiences that connect students to their cultural identities and communities, which includes a process of reflection to encourage self-assessment and self-evaluation (Bartle, 2015 & Brown and Copper 2025 Ladson-Billings).

Findings indicate that by implementing a culturally affirming environment that represents their backgrounds and promotes girls' and women's sense of identity, sense of community, fosters empowerment, and increases their long-term participation in STEM, CREL can help disrupt the early experiences of discrimination that they may face in STEM (Remington, 2023 & Rodriguez-Operana 2025).

ORAL PRESENTATION

Speaker

D

Daniela Ortega-Ramos

Lead Presenter | C - 4

Hot Take: Can AI be used for STEM Servingness?

1:35 PM – 1:55 PM

MASTER'S

Technological advancements in artificial intelligence (AI) have impacted STEM education at Hispanic Serving Institutions (HSIs). Guided by servingness frameworks (Garcia et al., 2019; Ro et al., 2024), this literature review investigates how AI can influence STEM servingness by understanding how it can be leveraged to create and enhance culturally relevant practices (CRP)for Latinx STEM students within HSIs.

HSIs must enroll 25% or more Latinx students, and currently enroll 60% of all Latinx undergraduate students while also awarding 53% of STEM degrees to Latinxs (Santiago et al., 2024). Rising Latinx STEM representation underscores the importance of applying STEM servingness frameworks to support these students. STEM servingness conceptualizes how HSIs can intentionally support Latinx STEM students (Ro et al., 2024). With new AI technologies, HSIs have the potential to leverage these platforms to increase institutional STEM servingness.

The literature was compiled using keywords HSIs, AI, STEM Servingness, and CRP in Google Scholar, OneSearch, and ResearchGate databases. Preliminary findings focus on how AI can be utilized for CRP in the classroom and beyond. AI may transform STEM instruction to meet students' individual needs, incorporating their cultural backgrounds (Asri, 2024; Ijiga et al., 2025). For example, STEM educators can use AI to translate and simplify STEM terminology for Latinx students, including providing Spanish translations that support accessibility for Spanish-speaking learners (Taber & Villarreal, 2025). Studies also note that limited integration of advanced technologies in schools contributes to disparities in STEM readiness, underscoring the need for AI-driven approaches that better equip educators and students (Ogeawuchi, 2020; Ijiga et al., 2025).

Current research suggests that HSIs can equitably utilize AI platforms to make STEM education culturally relevant and accessible for Latinx students. Detailed findings and recommendations on how AI can support STEM servingness at HSIs will be further discussed in the presentation.

ORAL PRESENTATION

Speaker

D

Daniela Hernandez

Lead Presenter | C - 4

Reimagining SDSU's Communication and Critical Thinking GE Learning Outcomes for the Age of AI

1:55 PM – 2:15 PM

MASTER'S

The learning outcomes listed as goals of the SDSU General Education area of Communication and Critical Thinking include constructing and assessing arguments, analyzing academic texts, and situating discourse within different contexts. As students increasingly use AI tools to complete writing-related tasks, these learning outcomes—which have not been updated since at least 2020—demand modern revisions for the sake of maintaining the relevance and importance of communication and critical thinking skills in the age of AI.

To do so, the new learning outcomes ought to emphasize the most human parts of the writing process—the parts that artificial intelligence cannot replace. In this presentation, I suggest three such outcomes for students: (1) Consider a variety of perspectives on the situations and texts of a class's subject, as well as the consequences of those perspectives (Fox, 2002). (2) Respectfully engage in productive discourse with a variety of differing opinions (Overstreet, 2019). (3) Express and articulate one's own values and opinions through problem-posing (Freire, 1970).

The rise of generative AI presents us an opportunity to return to the humanity of composition that we should have been focusing on all along. Critiques of the quality of AI-produced texts only confirm what we have known for decades about the ineffectiveness of over-emphasis on form, the valuation of product over process, and the privileging of white English. Now is the time to use the rise of this technology as an opportunity to leave those values behind for good, and re-focus on the non-robotic, non-formulaic aspects of writing—the ones we have always known are most important.

ORAL PRESENTATION

Speaker

S **Sierra Vakili**
Lead Presenter | C - 4

Designing Ethical AI Research: Lessons from a Student Study on Teacher Workload and Well-Being

2:15 PM – 2:35 PM

UNDERGRADUATE

The rapid integration of artificial intelligence (AI) tools in education is transforming teacher roles in planning, grading, and delivering course content. While these technologies promise efficiency and innovation, they may also increase teachers' cognitive load and role stress (Jose at al., 2025). Grounded in Cognitive Load Theory (Sweller, 1988), this study explores how K–6 teachers perceive AI tools in relation to workload and well-being.

This study examines whether teachers' appraisals of AI: perceived usefulness, ease of use, and mental demands are associated with extraneous cognitive load, role conflict, and teacher well-being. This study explores conditions under which AI may contribute to or relieve teachers' day-to-day workload.

This study employed a cross-sectional survey design. An anonymous Qualtrics survey was administered to K–6 teachers in ten Elementary Schools working in Imperial Valley, CA. The instrument consisted of 28 items derived from validated scales assessing AI appraisal, extraneous cognitive load, role conflict, and teacher well-being (Paas, 1992; Leppink et al., 2013; Rizzo et al., 1970; Collie et al., 2015). Three optional open-ended questions intend to gather qualitative reflections on AI use. Quantitative analyses include descriptive statistics, reliability testing, and correlational analysis.

Data collection is ongoing. Preliminary screening suggests teachers vary widely in AI exposure and appraisal, with early trends indicating that greater perceived demands of AI correspond to higher reported cognitive load and lower well-being.

This pilot study provides preliminary insights into teachers' working integration of AI in the workplace. Findings are expected to inform teacher-centered technology design, ethical AI policy, and professional-development strategies that reduce unnecessary cognitive strain while supporting instructional innovation.

ORAL PRESENTATION

Speaker

A **Antonio Romo**
Lead Presenter | C - 4

C - 5: Engineering and Computer Science (G) 2

1:00 PM – 3:00 PM | Location: Pride Suite

GRADUATE

ORAL PRESENTATION

Speakers

D **Dalston Karto**
Lead Presenter | C - 5

K **Katie Naretto**
Lead Presenter | C - 5

K **Kevin Medici**
Lead Presenter | C - 5

N **Neharika Ravichandran**
Lead Presenter | C - 5

Anushka Sarode

Lead Presenter | C - 5

A scalable machine learning decision support tool for California wildfire management

1:15 PM – 1:35 PM

MASTER'S

Wildfires in California pose significant threats to ecosystems, water resources, and human communities, with cascading impacts on watershed health and downstream communities. This research develops a machine learning (ML) decision support system (DSS) to prioritize post-fire response and wildfire prevention measures across California's watersheds. The DSS will identify and weigh key drivers of wildfire risk and post-fire vulnerability using advanced ML techniques. We integrate hydrological, environmental, socioeconomic, and wildfire-related factors into a composite vulnerability index. Metrics are derived from satellite imagery (e.g., NDVI, burn area), hydrological models (e.g., runoff, sediment yield), in-situ water quality measurements (e.g., turbidity, nutrient loading), and population demographics (e.g. population vulnerability, income) . Random forests and neural networks are employed to systematically identify critical drivers by evaluating feature importance, partial dependence, and predictive performance across diverse fire scenarios. Using an ML-optimized weighted geometric mean, the index assigns vulnerability scores, with weights iteratively refined through random forest feature importance ranking and neural network sensitivity analysis to maximize predictive accuracy and interpretability. This ML-centric approach not only ranks and prioritizes watersheds for intervention but also forecasts vulnerability with respect to shifts in vulnerability due to climate and land-use scenarios. These results will provide opportunities for actionable and adaptive management,empowering managers to allocate resources efficiently and build long-term resilience in fire-prone watersheds.

ORAL PRESENTATION

Speaker

D

Dalston Karto

Lead Presenter | C - 5

Real-Time Cardiac Diagnostics: Improved Selectivity and Sensitivity with the BioFET

1:35 PM – 1:55 PM

MASTER'S

Transistors are an integral component of modern semiconductor technology, as their ability to amplify small signals can be harnessed for sensing technology. The specific type of transistor being investigated is a Biological Field-Effect Transistor (BioFET), which incorporates a glassy carbon electrode channel that carries an electric current between the source and drain terminals. This biosensor is designed to target cardiac troponin-I (cTnI), a protein complex released into the blood during heart muscle cell death and is widely recognized as a critical biomarker for acute myocardial infarction (AMI), commonly known as a heart attack. An early detection system for elevated cTnI levels could significantly improve AMI survival rates, and the BioFET offers a promising solution by enabling real-time readings of cTnI in the blood. Glassy carbon was selected as the electrode channel material due to its high electrical conductivity, mechanical durability, and strong biocompatibility. Electrode channel conductivity is modulated by an electric field generated through an applied gate voltage, enabling control over the drain-source current. To achieve selective detection, the electrode surface will be functionalized with a cTnI-specific DNA aptamer that serves as the biorecognition element. When cTnI binds to the immobilized aptamer, electron transport across the electrode is restricted, producing a detectable change in drain-source current. This mechanism allows the BioFET to convert biomolecular binding events into measurable electrical signals. Device characterization will include transconductance testing to evaluate how changes in gate-source voltage influence drain-source current, establishing the baseline electrical behavior of the sensor. The BioFET will be exposed to varying cTnI concentrations to quantify changes in current relative to baseline currents obtained in the absence of the cTnI. The BioFET demonstrates strong potential for rapid, specific, and real-time troponin detection, supporting the development of diagnostic tools for early heart attack intervention.

ORAL PRESENTATION

Speakers

K

Katie Naretto

Lead Presenter | C - 5

Z

Zaina Kudchiwala

Co-Presenter | C - 5

New Generation of High Power Density 3D Interdigitated Supercapacitors

1:55 PM – 2:15 PM

MASTER'S

Supercapacitors are promising energy-storage devices for small biomedical systems; they offer high power, fast charging, and long cycle life. Achieving high capacitance and stable charge storage in a microscale footprint remains challenging for implantable designs. This work explores an interdigitated microsupercapacitor design that uses glassy carbon electrodes formed by patterning SU-8 photoresist and converting it through pyrolysis. The electrodes dimensions, and gap spacing are varied to study how the geometry influences charge storage. A polyimide layer provides insulation, a chromium–platinum layer serves as the current collector, and a second polyimide layer completes the encapsulation. A central aim of this study is to evaluate device behavior in phosphate-buffered saline (PBS), which has an ionic strength similar to human blood, sweat, and tears. Testing in PBS allows us to assess whether the device can form an electric double layer under physiologically relevant conditions. In this mechanism, ions in solution pack tightly against the electrode surface to form a compact Helmholtz layer which stores charge through electrostatic attraction rather than chemical reactions. This fast and reversible ion arrangement makes EDLC-based storage attractive for implantable and wearable devices, where chemical stability and biocompatibility are essential. Cyclic voltammetry (CV) is used to evaluate charge storage behavior and estimate capacitance by measuring the current response to varying voltage. Electrochemical impedance spectroscopy (EIS) provides complementary information on impedance and ion transport, allowing us to assess the frequency response and interface resistance of the device. The findings from this work will help determine whether glassy-carbon microsupercapacitors can operate reliably in biological fluids and support future integration into biomedical implants and low-power sensing systems.

ORAL PRESENTATION

Speakers

K **Kevin Medici**
Lead Presenter | C - 5

N **Nicholas Theriault**
Co-Presenter | C - 5

Simultaneous monitoring of dopamine and lactate in chemical hypoxia using a carbon microelectrode

2:15 PM – 2:35 PM

MASTER'S

Hypoxic conditions perturb neuronal homeostasis by impacting both metabolic and neurotransmitter pathways. Limited oxygen availability forces a metabolic shift toward anaerobic glycolysis, which elevates extracellular lactate, while also disrupting dopamine regulation through changes in ATP-driven transport and redox chemistry. Although these responses occur in parallel, existing detection approaches typically measure them independently. To address this, the present work focuses on creating a microfabricated dual-electrode sensor designed for simultaneous electrochemical monitoring of dopamine and lactate during chemically induced hypoxia.

The neural probe integrates two microelectrodes on a silicon substrate. A carbon thin-film electrode is designated for dopamine detection using fast-scan cyclic voltammetry (FSCV), enabling monitoring of rapid dopamine fluctuations. A second functionalized microelectrode with a lactate oxidase (LOx) enzyme layer supports amperometric detection of lactate via hydrogen peroxide (H_2O_2) generation from LOx-mediated oxidation. Both electrodes are patterned using standard photolithography, metal deposition, and polyimide passivation steps.

Hypoxia will be simulated using a chemical oxygen depletion system consisting of PBS, glucose oxidase, and catalase, which creates a gradual and reproducible decline in dissolved oxygen. This model allows characterization of the neural probe's performance throughout the transition from normoxic to hypoxic conditions. Key parameters to be evaluated include sensitivity, limit of detection, noise level, response time, and selectivity in the presence of common electroactive interferents. FSCV will be used to quantify dopamine oxidation currents during hypoxic shift, while amperometric measurements will track lactate accumulation at the LOx-modified electrode.

The combined measurement approach enables direct comparison of neurotransmitter and metabolic responses within the same environment.

ORAL PRESENTATION

Speaker

N **Neharika Ravichandran**
Lead Presenter | C - 5

Internal Deformation Mapping via Terahertz Digital Image Correlation

2:35 PM – 2:55 PM

DOCTORAL

Digital image correlation (DIC) has revolutionized experimental solid mechanics by resolving surface strain fields across a broad range of materials and loading conditions. However, conventional DIC is fundamentally limited by the penetration depth of visible light, which prevents crucial investigation of internal strains and the influence of complex subsurface boundary conditions on structural mechanics. To overcome this limitation, we present a novel DIC-based method that leverages terahertz (THz) illumination and imaging: THz Strainmetry. Taking advantage of the transparency of many polymers in the THz band, the primary objective of this study is to validate the accuracy of THz Strainmetry by comparing the full-field kinematics against conventional surface DIC measurements. The approach hinges on tensile testing of neoprene rubber strips with inclusions under quasi-static loading rates as a model material system. This homogeneous polymeric substrate minimizes noise from microstructural scattering, providing a consistent platform for comprehensive validation. The results demonstrate that THz Strainmetry can accurately resolve displacement fields deep within the continuum, which are entirely inaccessible to conventional DIC, thereby offering a non-destructive method for elucidating the fundamental internal deformation mechanisms underlying the overall mechanical behavior of soft and composite materials.

ORAL PRESENTATION

Speaker

Anushka Sarode

Lead Presenter | C - 5

C - 6: Health Nutrition and Clinical Sciences (U/G) 1

1:00 PM – 3:00 PM | Location: Metztli

UNDERGRADUATE/GRADUATE

Please note: One presentation has been withdrawn. Presenters should still present at their assigned times.

ORAL PRESENTATION

Speakers

D

Divya Sen

Lead Presenter | C - 6

L

Leah Ponce

Lead Presenter | C - 6

N

Nikolay Ivanov

Lead Presenter | C - 6

S

Sierra Turbeville

Lead Presenter | C - 6

Evaluating the Institute of Reproductive Grief Care's Professional Standard Designation Program

1:15 PM – 1:35 PM

MASTER'S

Purpose: Reproductive grief is connected to serious mental health issues including anxiety, depression, and post-traumatic stress disorder. Healthcare professionals are often ill-equipped to handle the unique needs of patients experiencing reproductive grief. The Institute of Reproductive Grief Care's Professional Standard Designation (PSD) program aims to train clinic staff on best practices for caring for those experiencing reproductive grief in order to improve patient outcomes. The purpose of this program evaluation is to assess the efficacy of the PSD program at improving knowledge, self-efficacy, and skills related to reproductive grief care best practices among healthcare professionals.

Methods: Pregnancy clinics (n=6) were selected to participate in the PSD program. Pre- and post-survey data was collected via Jotform from healthcare professionals to examine changes in knowledge, self-efficacy, and skills across 7 reproductive grief care content areas. Internal consistency was assessed for the adapted survey instrument using Cronbach's alpha. Survey responses were matched and analyzed using paired t-tests, with demographic data being collected to contextualize the findings. Qualitative responses were assessed using open coding content analysis.

Results: A total of 143 healthcare professionals enrolled in the program. The matched sample (n=126) identified primarily as female (97%) and were on average 51 (50.64) years old. While the average time participants reported being in their current role was 5 (5.17) years, they averaged almost 12 (11.70) years of experience in any healthcare setting. Preliminary data shows low baseline levels of self-efficacy around discharge planning, with 33% of participants strongly disagreeing and 65% disagreeing with the likert items. Knowledge around bereavement care was also low with 24% of respondents disagreeing with the likert item.

Conclusion: Data analyses are ongoing. The final results of the evaluation will inform future updates to the PSD program and to support the creation of additional educational materials.

ORAL PRESENTATION

Speaker

D

Divya Sen

Lead Presenter | C - 6

Transcriptional Regulation of Metamorphosis-Associated Contractile Structures by a Sigma Factor

1:35 PM – 1:55 PM

MASTER'S

Bacteria use diverse molecular strategies to interact with and adapt to their environments, including the use of contractile injection systems (CIS). One such system, metamorphosis-associated contractile structures (MACs), is produced by the marine bacterium Pseudoalteromonas luteoviolacea and induces metamorphosis in the tubeworm Hydroides elegans. MACs are extracellular, phage-derived nanomachines that inject protein effectors into target cells. They are, however, produced at low frequency, with only ~2.4% of cells generating MACs under native conditions.

We identified a sigma factor, macR, within the MACs gene cluster that is required for MACs production. Deletion of macR significantly reduces H. elegans metamorphosis, indicating that macR is a key transcriptional regulator of MACs biosynthesis. To increase yield, this project aims to manipulate MACs regulation by placing macR under the control of a rhamnose-inducible promoter, enabling controlled overexpression. MACs production and functionality will be assessed using established metamorphosis assays.

This work is ongoing, with the expected outcome that inducible macR expression will increase MACs production relative to wild-type levels. Enhancing yield will facilitate downstream purification and support future development of MACs as targeted protein delivery platforms for therapeutic applications.

ORAL PRESENTATION

Speaker

L

Leah Ponce

Lead Presenter | C - 6

Investigating the Association Between Adrenergic α₁-antagonist Use and Peripheral Venous Disease

2:15 PM – 2:35 PM

MASTER'S

BACKGROUND

We tested the hypothesis that α₁-antagonist use is associated with lower-extremity (LE) venous disease incidence.

METHODS

We conducted a cohort study to examine the association between α₁-blocker exposure and incident venous disease. At baseline, all participants were confirmed to be free of venous disease by duplex ultrasonography. Participants were followed for 9–13 years, with repeat ultrasound to assess for incident disease.

To examine whether α₁-antagonist use was associated with venous disease symptoms, we performed a cross-sectional analysis in a separate sample. Participants completed a survey ascertaining common symptoms. Logistic regression was used to evaluate associations between α₁-antagonist use and venous symptoms, adjusting for age, sex, diabetes (DM), and smoking.

RESULTS

The cohort study included 821 participants, of whom 14 were taking an α₁-blocker. Mean age at enrollment was 58 years; 65% were female, 5% had DM, and 55% were never-smokers. During follow-up, 330 participants developed incident venous disease. α₁-blocker use was associated with a 43% higher risk of venous disease (RR = 1.43, AR% = 30%, NNH = 6), though this association was not statistically significant (Fisher's exact test, p = 0.27; 95% CI, 0.6–7.1).

The cross-sectional analysis included 1,056 individuals, of whom 25 were taking an α₁-blocker and 534 had prevalent venous disease. Mean age was 70 years; 67% were female, 10% had DM, and 67% were never-smokers. We observed no significant association between α₁-blocker use and the composite outcome of any venous symptom, though the direction of effect was positive (OR = 1.52; p = 0.34). However, α₁-antagonist use was associated with higher odds of restless legs, at marginal significance (OR = 3.3; p = 0.073; 95% CI, 0.7–10.9). Non-significant positive associations were observed for leg swelling (OR = 1.87; p = 0.29) and burning (OR = 2.67; p = 0.38).

CONCLUSION

α₁-antagonist use may be a risk factor for LE venous disease, though estimates were imprecise. Larger studies are needed to confirm this association.

ORAL PRESENTATION

Speaker

N

Nikolay Ivanov

Lead Presenter | C - 6

The Role of Social/Emotional Support and Loneliness on Long COVID Recovery and Impairment

2:35 PM – 2:55 PM

MASTER'S

Long COVID remains a critical public health issue, reducing quality of life for millions of Americans. Due to the complications of their illness, individuals with long COVID are more likely to experience loneliness and a loss of social support, which can in turn affect their health. The purpose of this study is to assess the impact of social/emotional support and loneliness on functional impairment and recovery from long COVID among U.S. adults. A secondary analysis of National Health Interview Survey (NHIS) 2024 data was conducted. The study sample was subset to adults with a history of long COVID (n=2,627) to assess recovery and was subset to adults who currently have long COVID (n=1,106) to assess impairment. Social/emotional support and loneliness were treated as independent exposures. Demographic characteristics such as age, sex, race/ethnicity, education level, and employment status were considered as covariates. Multivariable binary and ordinal logistic regression analyses were conducted with long COVID recovery and degree of impairment as the respective outcomes. A loneliness by social/emotional support interaction was tested to evaluate whether the effect of loneliness on LC recovery or impairment was modified by social/emotional support. All analyses were weighted appropriately to account for NHIS's complex survey design. Loneliness was negatively associated with long COVID recovery, when adjusting for social/emotional support, age, sex, race/ethnicity, education, and employment (p=0.0368). Social/emotional support was negatively associated with worsening impairment (p=0.0075) and loneliness was positively associated with worsening impairment (p=0.0155), when adjusting for age, sex, race/ethnicity, education, and employment. These preliminary results indicate that social support and loneliness are possible areas of intervention for long COVID care. A key limitation of this cross-sectional study is its inability to draw causal inferences. Future longitudinal studies should be conducted to distinguish the direction of these relationships.

ORAL PRESENTATION

Speaker

Sierra Turbeville

Lead Presenter | C - 6

C - 7: Humanities, History, Literature, & Philosophy (G) 2

1:00 PM – 3:00 PM | Location: Aztlan

GRADUATE

ORAL PRESENTATION

Speakers

Leeann Jones

Lead Presenter | C - 7

Rachel Layton

Lead Presenter | C - 7

Raine Porath

Graduate Candidate: M.A. in Liberal Arts and Sciences | San Diego State University

Zane Shrem-Besnoy

Lead Presenter | C - 7

Presentation Withdrawn

1:15 PM – 1:35 PM

MASTER'S

ORAL PRESENTATION

The Cost of Returning Home: The Act of Repatriation and its Economic Impact on the Museum Industry

1:35 PM – 1:55 PM

MASTER'S

From the 19th century to today, museums have provided the illicit antiquities market with room, even encouragement, to thrive. Countering this growth in illicit antiquities, repatriation, and the advocacy for the return of these items to their country of origin have increased and garnered media attention. Both the repatriation policies and media attention on repatriation have provided lenses through which to view how the museum community receives the act of repatriation. Despite the 1970 UNESCO Convention and the enactment of NAGPRA in 1990, both of which allow countries to seek repatriation of their stolen antiquities, museums persevere in claiming that the cost of repatriation is too high to engage in the process. Due to the lack of physical enforcement and federal funding, the return of stolen artifacts has only started within the last ten years, in part due to the coverage it has received in the media and associated federal investigations of trafficking and tax fraud. This presentation tracks nine objects ranging from Classical Antiquity (the Met's Euphronios Krater, the MFA's Vibia Sabina, the Getty's Orpheus and the Sirens), East Asia (the Mingei's Serpentine Bracelet, the Met's Celestial Dancer, and the AIC's fragment of pilaster), and North American Native American artifacts, from their acquisition at a museum, through their journey of repatriation and return to their countries of origin. A six-step investigation guides the research: What is the object? When/how was it looted? Where/when did it resurface? When/how/where did the repatriation process begin? How/if/when/where it was returned? What was the economic impact on the museum repatriating the object and the museum/country that receives it? This research balances museums' perspectives on repatriation with a financial analysis that uncovers the gray area these institutions use to avoid engaging in the repatriation process.

ORAL PRESENTATION

Speaker

Leeann Jones

Lead Presenter | C - 7

Working for the Nation: Women's Citizenship in Life Magazine, 1939-1946

1:55 PM – 2:15 PM

MASTER'S

In 1941, women entered the workforce in previously unheard of numbers as the United States joined the global war. Yet on the pages of Life magazine, messaging surrounding women's work was contradictory, praised only when it did not seriously threaten traditional female gender roles of women as family caretakers or objects of masculine desire. During World War II, the American government worked with the advertising industry and media organizations, Life included, to mobilize the homefront, and in doing so reconstructed expectations and boundaries of women's citizenship.

My presentation will analyze American women's wartime expectations as portrayed in around 40 issues of Life magazine from 1939-1946. At this time, Life magazine was one of the most popular American magazines in the country, with almost three million paid subscribers. It blended art and news while reflecting the middle-class ideals of its target audience, and contributed to the government's campaign to mobilize the nation for total war through imagery, advertisements, and articles. I argue here that as men's absence pushed women to fill gaps on the job market, Life strove to make those changes palatable for mainstream society by renegotiating women's gender roles, while at the same time restricting them. My research also highlights how the media redefines societal standards of citizenship; from 1941 to 1945, Life asserted that, within the bounds of specific feminine qualities, the ideal American woman worked selflessly for her country and its values.

ORAL PRESENTATION

Speaker

Rachel Layton

Lead Presenter | C - 7

Moving with the Media Network of Rufus Butler Seder's Gallop!

2:15 PM – 2:35 PM

MASTER'S

I analyze Rufus Butler Seder's animated toy books "Gallop!" (2007) and "Swing!" (2008) in the context of mobility and disability studies. Seder's "Scanimation" books mediate the colliding movements of intermedia histories between the book and screen media, hypermediating the physical reading processes of human bodies and their media network. Examining the media networks of Seder's books necessitates examining the bodily movements of their readers – including myself – and models how materiality and network studies might be used in bodywork like disability studies. I begin with an overview of my material experiments with remediating Seder's Scanimation technologies, using this experience to ground closer inspections of the books' material and cultural contexts. Archival, intermedia, and disability studies guide my analysis of Seder's filmic remediations. I consider the toy book as a highly mediated tool of compliance training for child readers, using Seder's books as key examples of how physical reading processes carry political resonance.

ORAL PRESENTATION

Speaker

Raine Porath

Graduate Candidate: M.A. in Liberal Arts and Sciences | San Diego State University

Improvisation as Autobiography: Postirony for Music Pedagogy

2:35 PM – 2:55 PM

MASTER'S

Musicians of the 1960s sought new forms of expressive freedom in response to the growing recording industry. Many explored improvisatory performance as an alternative to the established models of classical, folk, and popular genres. The rise of open mics, drum circles, and jam bands was part of this impulse toward live, accessible, and community-centric music. In the musical avant-garde, some composers challenged the “authority” of conventionally notated music by incorporating abstract charts, symbols, and texts to be interpreted by performers. The most radical of these composers abandoned music notation entirely, preferring language alone to invite people into their improvisatory practice.

Not without some irony, this style of “free” improvisation soon entered the academy and was subsequently canonized through influential texts and celebrated theorists. Music educators continue to struggle with the resulting historical and cultural tension: how can students develop their own freedom without emulating the past? Many improvisation educators have drawn on exercises from theater and dance to expand their pedagogical approaches, but the development of new, student-centered curricula in musical improvisation appears to have stagnated since the 1980s.

Prompts for improvisation form a unique literary genre designed to generate creative action, positioning their authors in a nuanced ethical relationship with their readers. This social dynamic evokes narrative theorist Lukas Hoffmann’s account of literary postirony. Most famously associated with author David Foster Wallace, the 1990s postironic literary movement sought to aestheticize the inevitable distance between authorial intent and reader experience. Hoffmann claims that through the use of autobiography, autocriticism, and disruption of narrative boundaries, authors are able to model an ethical perspective through their stylistic address and draw the reader into reciprocal action.

In this research project, I will analyze a selection of improvisation prompts by pioneering composers Pauline Oliveros and Cornelius Carde

ORAL PRESENTATION

Speaker

Z **Zane Shrem-Besnoy**
Lead Presenter | C - 7

C - 8: Physical and Mathematical Sciences (G) 2

1:00 PM – 3:00 PM | Location: Mata'yuum

GRADUATE

ORAL PRESENTATION

Speakers

B **Bethany Sawyer**

E **Eugene Kwon**
Lead Presenter | C - 8

I **Ingrid Sebor**
Lead Presenter | C - 8

J **Joseph Charlonis**
Lead Presenter | C - 8

J **Josh Friedman**
Lead Presenter | C - 8

The Accessibility of Ring-Expanded Carbenes

1:15 PM – 1:35 PM

DOCTORAL

Transition-metal (TM) catalysts are vital to modern chemistry due to their ability to mediate transformations in ways that would otherwise be slow or inaccessible. Their effectiveness depends strongly on the ligand (an organic molecule) bound to the metal. N-Heterocyclic carbenes (NHCs) are organic molecules with a set of unpaired electrons which constitute one of the most versatile classes of ligands for TM catalysis in modern chemistry. Their unique electronic and structural properties allow them to bind more tightly to TM catalysts and main group elements which has enabled major advances in catalysis as seen with the 2005 and 2021 Nobel Laureates. In recent years, attention has been garnered towards larger NHCs whose increased backbone flexibility and altered electronic profiles are predicted to unlock new reactivities. Despite their promising features, there is minimal experimental knowledge about the properties of these compounds in their genuine free carbene forms.

Herein we report the first isolation and characterization of a nine-membered NHC (NHC-9). We explored its reactivity in a series of trapping experiments and found that the carbene selectively forms isolable adducts with selenium and tellurium, as confirmed by NMR and X-ray diffraction. This is unlike several classical NHCs that display ambiphilic or strong nucleophilic behavior; this ring-expanded carbene displays an alternative reactivity profile, further reinforcing the notion that larger NHC motifs access fundamentally different bonding regimes.

These results overwhelmingly rebuke previous assumptions regarding the instability of nine-membered NHCs and establish ring-expanded carbenes as experimentally accessible molecules with unique reactivity patterns. This work broadens the chemical landscape of NHCs as ligands and catalysts, opening new opportunities for molecular design across organometallic chemistry and main-group chemistry.

ORAL PRESENTATION

Speaker

Bethany Sawyer

Assessing the Restricted Open-Shell Kohn-Sham Approach for Accurate Prediction of Excitation Energy

1:35 PM – 1:55 PM

DOCTORAL

In computational chemistry, time-dependent density functional theory (TD-DFT) has long been the workhorse method for excited-state calculations. However, it has well-known limits in double (or higher) excitations, states with significant charge-transfer characters, and emission energies that require substantial orbital relaxation, restricting ubiquitous usage of the methodology. With recent advances in methodology, restricted open-shell Kohn-Sham (ROKS) has emerged as a promising state-specific alternative that circumvents several weaknesses of TD-DFT by explicitly relaxing excited-state molecular orbitals. To further advance the use of ROKS, we aim to systematically validate ROKS across representative systems, evaluate algorithm choices for orbital optimization, identify the effects of singly-singly (SS) mixing, and examine its feasibility when applied to complex environments. As of writing, a streamlined workflow for ROKS has been developed for the Q-Chem software package, based on extensive testing over combinations of density functionals, basis sets, and optimization algorithms, along with a representative benchmark set. Our preliminary results indicate that algorithm choice affects the reliability of ROKS calculations, with some commonly used algorithms showing a higher propensity for convergence failures or variational collapse to the ground state. Moreover, we found that removing the SS mixing from the variational space significantly improves the consistency and robustness of excited-state solutions by effectively reducing spurious ground-excited state overlap during orbital optimization. The new workflow and recommended settings we propose will elevate ROKS as a robust alternative to TD-DFT for excited-state calculations, which has broad impact on chemical applications that rely on accurate predictions of photophysical/photochemical properties, including the design of fluorescent probes for bioimaging and photoredox catalysts for driving efficient and selective transformations - areas that are currently being pursued in the Mao lab.

ORAL PRESENTATION

Speaker

Eugene Kwon

Lead Presenter | C - 8

TEM Analysis of the Multi-subunit IKK Complex from Drosophila Melanogaster

1:55 PM – 2:15 PM

MASTER'S

The NF-κB pathway plays a large role in innate immune responses, regulating expression of genes for inflammation, apoptosis, and cell growth, survival, and proliferation. The inhibitor of NF-κB kinase (IKK) acts as a master switch, phosphorylating the inhibitor of NF-κB (IκB) which marks it for ubiquitination and degradation, freeing NF-κB to translocate into the nucleus and begin transcribing immune response genes. The mammalian IKK complex is composed of three subunits, two of which, alpha and beta, are catalytically active, kinase-domain containing, and have been structurally characterized with nearly full-length crystal structures. There are no full-length structures of the third subunit, IKKγ, which is not catalytically active, but is believed to play its necessary role as a structural scaffold. In light of the difficulties that have plagued attempts to crystallize the flexible human IKKγ, the fruit fly Drosophila melanogaster presents a simpler model system to study, with an IKK complex composed of only two subunits, homologous to human IKKβ and IKKγ. Using an sf9 insect cell expression system and affinity and size exclusion chromatography to express and purify the DmIKK subunits, iSCAT to determine purity and in-solution oligomerization states, and negative-stain and cryogenic transmission electron microscopy, we aim to structurally characterize full length DmIKKγ and its effects on the conformation of DmIKKβ. The DmIKK complex has been purified and observed to exist mainly as a heterotetramer in solution. The DmIKKβ homodimer has also been purified, and a 9Å 3-D reconstruction has been derived from a data set of cryo-EM micrographs.

ORAL PRESENTATION

Speaker

Ingrid Sebor
Lead Presenter | C - 8

Quantitative Kinetic Control in The Non-Seeded Photochemical Synthesis of Silver Nanoparticles

2:15 PM – 2:35 PM

DOCTORAL

Light-induced transformation of plasmonic silver nanoparticle size and shape is both mechanistically interesting and synthetically useful for various applications such as catalysis, sensors, and optics. While there are numerous reports in the literature of photochemically grown silver nanoparticles, these are semi-quantitative at best. We've discovered that pH and trace levels of metal contamination in reaction vessels have a remarkable impact on the onset of photochemical nanoparticle synthesis, which in turn affects their final morphology. We've identified that Fe(III) citrate is a potential photo-active complex that forms in our system, and when this species is exposed to visible light, initiates silver nanoparticle formation. We've made use of this non-hazardous photocatalyst by adding in controlled amounts to our standard reactions of silver nitrate and trisodium citrate performed in ultraclean glassware. We've found a direct relationship between the amount of added Fe(III) citrate and the kinetics of the overall reaction. The present work is a quantitative analysis of these syntheses for forming size-controlled icosahedral silver nanoparticles. Using time-resolved UV-Visible spectroscopy, nuclear magnetic resonance, dynamic light scattering, and transmission electron microscopy, we have carried out a detailed mechanistic study of this system. We emphasize the effects of pH, stoichiometry, and incident light wavelength on nucleation of clusters with specific defects through nanoparticle growth and plasmon-driven Ostwald ripening to see how these play into the final fate of the particles. Our present work indicates that with careful control of the parameters above, we can control the reaction kinetics and final morphology of these nanoparticles.

ORAL PRESENTATION

Speaker

Joseph Charlonis
Lead Presenter | C - 8

Doppler Boosting as a Driver of Asymmetry in Double-Peaked Emission Lines from Accretion Disks

2:35 PM – 2:55 PM

MASTER'S

Accretion disks are common throughout the universe, found around objects from nearby protostars to quasars billions of light years away. They consist of gas in flat circular orbits slowly spiraling inwards due to the gravity of the central object. Spectral emission lines from accretion disks often have two peaks due to the Doppler effect: as the gas in the disk orbits around the central object, it is sometimes moving toward or away from us, resulting in blueshifted and redshifted light. However, the blueshifted peak is often stronger; the reason behind this asymmetry is not understood. We seek to explain this asymmetry by modeling an accretion disk and including the Doppler boosting effect. Doppler boosting, otherwise known as Doppler beaming, is a relativistic effect that increases the apparent brightness of an object moving toward an observer. Even though the velocities of gas in accretion disks are non-relativistic, this effect could be detectable. To test our hypothesis, we construct accretion disk models and compute synthetic emission line profiles both with and without Doppler boosting. We then compare these simulations with observations.

ORAL PRESENTATION

Speaker

Josh Friedman
Lead Presenter | C - 8

C - 9: Behavioral and Social Sciences (G) 6

1:00 PM – 3:00 PM | Location: Visionary Suite

GRADUATE

ORAL PRESENTATION

Speakers

Alexys Lavis
Lead Presenter | C - 9

Beenish Fatima
San Diego State University

Sandra Mariana Garcia Cervantes
Teaching Associate | San Diego State University

Shangyu Lou
Lead Presenter | C - 9

Exploring Role of Gender and Sexual Abuse on Mental Health in Adolescents with Childhood Adversity

1:15 PM – 1:35 PM

MASTER'S

Adverse childhood experiences (ACEs), including abuse, neglect, and household dysfunction, contribute to maladaptive emotional and behavioral development in adolescence. Less is known about whether these effects differ by gender or whether sexual abuse, considered separately from other ACEs, uniquely predicts mental health outcomes. This study examined how ACEs influence depression, anxiety, and sexual concerns among adolescents. We hypothesized sexual abuse would moderate these associations, such that adolescents reporting sexual abuse would exhibit worsened mental health. We also hypothesized that gender would moderate these associations, with stronger links between ACEs and mental health outcomes for females than males.

Participants were 1,354 adolescents from the Longitudinal Studies of Childhood Abuse and Neglect (LONGSCAN; ages 14–16, Female 51%). ACEs were assessed using participant and caregiver reports collected biennially between ages 4 and 14 and Child Protective Services records. Adolescents completed the Trauma Symptoms Checklist at age 16.

ACEs were significantly associated with depressive (β = –.058, p = .034), anxiety (β = –.058, p = .032), and sexual concern (β = –.058, p = .033) symptoms. Interactions between ACEs and sexual abuse were significant for depression (p = .0376), anxiety (p = .0356), and sexual concerns (p = .0269), indicating ACEs affected mental health differently for adolescents who experienced sexual abuse. Interactions between ACEs and gender were non-significant, suggesting associations did not differ by gender.

Findings suggest sexual abuse played a meaningful role in adolescent mental health, with ACEs linked to depressive, anxiety, and sexual concern symptoms differently for those who had experienced sexual abuse. Gender did not moderate these associations, indicating ACEs affected males and females similarly. Future research should explore mechanisms explaining why sexual abuse uniquely modifies the ACE–mental health relationship, as well as developmental, social, or contextual factors contributing to these differences.

ORAL PRESENTATION

Speaker

Alexys Lavis
Lead Presenter | C - 9

Exploring responses to the Women's March in the context of gendered nationalism in Pakistan

1:35 PM – 1:55 PM

MASTER'S

The Aurat March (women's march) demonstrations started in Pakistan on March 8th, 2018, on International Women's Day. Since that day, a large number of women take to streets with placards, chanting slogans, on International Women's day each year. These demonstrations have received severe backlash from the broader society. The march participants' main goal is aligned with the Fourth Wave Feminism, and they vie for gender equality by highlighting politics of sexuality and bodily autonomy among other issues concerning women. People on the far right are labeling this event as a depiction of Western ideals and violation of Islamic as well as cultural norms. I argue in this paper that the rhetoric of those opposing this march is rooted in gendered nationalism. They opine that by coming to streets and chanting "vile" slogans, Pakistani women are degrading the Pakistani nation and putting its honor at stake. By doing so, the masses are raising questions over the legitimacy of this march and attempting to make it look frivolous.

ORAL PRESENTATION

Speaker

Beenish Fatima
San Diego State University

From Correcto to Cool: Perceptual Dialectology of Spanish in the San Diego - Tijuana Border Region

1:55 PM – 2:15 PM

MASTER'S

This study aims to use perceptual dialectology to analyze how the Spanish spoken in the San Diego and Baja California border region is perceived by residents in these communities. Perceptual dialectology is the study of the linguistic perceptions —belief, attitudes, and stereotypes— of non–linguists regarding the dialects and dialectal variations of a region (Bucholtz et al., 2007; Montgomery, 2022; Preston, 2002). One of its main purposes is to help better understand how respondents perceive the world around them by analyzing the links between linguistic variation and social and regional identity. The participants (n = 57) that are part of this study are over 18 years of age, speak Spanish, and live or have lived in the border region of California–Baja California. The materials used for this study are a dialectical map of the border region, where participants were asked to draw/mark areas where they thought Spanish is spoken differently, followed by evaluation questions where participants were asked about their perceptions in regards to the regional Spanish. The results show that linguistic perceptions in the San Diego–Tijuana region are complex and reflect ideologies linked to border identity, prestige, and race. Based on qualitative labels and quantitative evaluations of correctness and solidarity, participants from San Diego display a broader and more stratified perceptual repertoire than those from Tijuana/Mexicali. While categorization from Tijuana focuses on broad labels (“Spanglish,” “no sabo,”), participants from San Diego produce regional words (“wey,” “arre,” “wacha”), stylistic judgments (“expressive,” “fast,” “informal”), and social stereotypes (“fresa,” “pocho,” “white-washed”). Numerical evaluations show that Mexican varieties are considered more correct than those from California. Los Angeles and San Diego rank low on both scales, reflecting ideologies that view U.S. Spanish as less legitimate. The study shows how social perceptions shape linguistic attitudes and contributes to broader discussions about linguistic identities near the border.

ORAL PRESENTATION

Speakers

S **Sandra Mariana Garcia Cervantes**
Teaching Associate | San Diego State University

E **Erik Muro Sandoval**

Enhancing Human Mobility Prediction through an OSINT-Based LLM Multi-Agent System

2:15 PM – 2:35 PM

DOCTORAL

Understanding and predicting human dynamics is essential for behavioral analysis and urban planning. Although existing studies have demonstrated the potential of Large Language Model (LLM)-based multi-agent systems (MAS) in simulating and predicting human mobility in urban environments, most of the environmental data is generated by the LLM. This could cause a biased representation of the real urban environment and limit human mobility prediction results. To address this issue, this study proposes a new framework that integrates open-source intelligence (OSINT) in geographic information data to enhance the LLM-based MAS framework for predicting individuals' next check-in locations based on Foursquare check-in data. The framework consists of three core components. The personal history component uses LLMs to summarize individual trajectories and extract repetitive spatiotemporal mobility patterns. The urban environment component applies OSINT methods to query nearby Points of Interest (POI) through the OpenStreetMap API, grounding the model in real-world contexts. The reasoning component performs multi-step LLM-based agent reasoning to combine individual mobility preferences with contextual POI information and infer the most plausible next check-in point. Experiments compare the performance across multiple state-of-the-art LLMs, including Llama 4, GPT-OSS, and Qwen3. The results show that the proposed framework improves the prediction of individuals' next check-in locations, providing a scalable and interpretable approach for data-driven human dynamics modeling and offering valuable implications for human mobility prediction.

ORAL PRESENTATION

Speaker

S **Shangyu Lou**
Lead Presenter | C - 9

Presentation Withdrawn

2:35 PM – 2:55 PM

MASTER'S

ORAL PRESENTATION

Speaker

P **Presenter Withdrawn**

E - 3: Media in a Changing World (G) 1

1:00 PM – 3:00 PM | Location: Templo Mayor

GRADUATE

MEDIA ORAL PRESENTATION SPECIAL SESSION

Speakers

G **Gichuhi Kamau**
Lead Presenter | E - 3

Jenna Fee Feyerabend
Lead Presenter | E - 3

Maria Jose Duran Gallego
Lead Presenter | E - 3

Escaping the Sunken Place: An Examination of Black Identity and Agency in Contemporary Horror Cinema

1:15 PM – 1:35 PM

MASTER'S

This research examines the evolution of contemporary Black horror as a cultural movement and its significance within broader scholarly conversations about race and representation in media. Across the literature, three central themes emerge: the increasing narrative agency afforded to Black characters, the articulation of Black identity through culturally specific horror aesthetics, and substantive shifts in representation that move beyond tokenism toward complex, protagonist-centered storytelling. Scholars highlight how recent films redefine the genre by centering Black subjectivity and reframing horror as a vehicle for cultural expression rather than racialized spectacle. Theoretical grounding draws primarily from Critical Race Theory and social identity theories that explain how media shapes understandings of group identity and belonging. Few studies quantify these representational changes over time, indicating a need for empirical research that systematically assesses representational change in horror films over time. The proposed quantitative content analysis seeks to investigate Black representation in contemporary horror.

MEDIA ORAL PRESENTATION SPECIAL SESSION

Speaker

Gichuhi Kamau
Lead Presenter | E - 3

Media Stereotypes and International Students' Identity in U.S. Colleges

1:35 PM – 1:55 PM

MASTER'S

Colleges in the United States are a melting pot of diverse cultural, linguistic, and national backgrounds, and international students in academia often encounter cultural and national stereotypes portrayed in U.S. mass media. While existing scholarship shows that these portrayals reinforce racial, ethnic, and linguistic hierarchies, little research explores how they shape international students' own sense of identity. This literature review synthesizes 15 peer-reviewed studies on media stereotyping, international student experiences, and cultural identity to address this gap. Across the research, international students report discrimination, accent-based bias, and pressure to adapt, while studies on identity show these conditions affect well-being and belonging. However, the role of media exposure in this process remains unclear. This review suggests that media portrayals may interact with campus experiences to influence identity negotiation, highlighting the need for research that directly examines how exposure to foreign stereotypes affects international students' sense of identity.

MEDIA ORAL PRESENTATION SPECIAL SESSION

Speaker

Jenna Fee Feyerabend
Lead Presenter | E - 3

The migrant caravans as a critical incident for Spanish-language local television news

1:55 PM – 2:15 PM

MASTER'S

Starting in 2018, migrant caravans continued arriving through 2023 and became a prominent topic in U.S. news coverage, including sustained attention from Spanish-language local television. Prior research shows that immigration coverage can shape audience attitudes and contribute to polarization. This study analyzes the understudied field of Spanish-language local television news in their coverage of migrant caravans through the concepts of critical incident–a news event that becomes pivotal for journalists and newsrooms–(Gerbner, 1975; Tandoc et al., 2020; Zelizer 1993), framing theory–how media shapes interpretation–(Iyengar, 1991), and the concept of news icon–an image lasting beyond an event across news contexts–(Bennet & Lawrence, 1995). Using semi-structured, in-depth interviews with Spanish-language television journalists (N = 24), the study finds that caravan coverage functioned as a critical incident, particularly for journalists working at stations closest to the U.S.–Mexico border. The ongoing and sometimes repetitive nature of the story enabled newsroom cooperation and routinized practices for humanizing migrants, localizing the issue, and explaining complex policy dynamics within the time constraints of local news. Participants described empathetic and ethical intentions, while also mentioning moments when ethical standards were strained, including the risk of exposing migrants and placing journalists in unsafe situations. Dominant frames were thematic and humanitarian, though episodic and invasion frames were also reported. The most enduring images described by participants featured large groups of migrants at militarized border sites, often carrying symbolism linked the "American dream." Journalists widely perceived the caravans as precipitating broader social change in the United States. Overall, participants aimed to serve immigrant communities, yet the presence of invasion framing and imagery suggests a potential contribution to more polarized interpretations of immigration among Latino audiences.

MEDIA ORAL PRESENTATION SPECIAL SESSION

Speaker

Maria Jose Duran Gallego
Lead Presenter | E - 3

Presentation Withdrawn

2:15 PM – 2:35 PM

MASTER'S

MEDIA ORAL PRESENTATION SPECIAL SESSION

Presentation Withdrawn

2:35 PM – 2:55 PM

MASTER'S

MEDIA ORAL PRESENTATION SPECIAL SESSION

Speaker

P **Presenter Withdrawn**

H - 1: Health Nutrition and Clinical Sciences (U) 2

1:00 PM – 3:00 PM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

A **Alexis Camejo**
Lead Presenter | H - 1

B **Ben Etheridge**
Lead Presenter | H - 1

C **Christine Valadez**
Lead Presenter | H - 1

E **Eli Whitman**
Lead Presenter | H - 1

E **Emily Zhang**
Lead Presenter | H - 1

K **Kamlyn Huang**

L **Lauren Turner**
San Diego State University

Presentation Withdrawn

1:00 PM – 2:55 PM

UNDERGRADUATE

POSTER

Speaker

P **Presenter Withdrawn**

Intervention Fidelity: Assessing Implementation Among Pre-professional Interventionists

1:00 PM – 2:55 PM

UNDERGRADUATE

This research examines pre-professional interventionists' fidelity to a scripted narrative language intervention, Story Champs (Language Dynamics Group). Fidelity ensures standardization of intervention implementation; lessons delivered with integrity to the intervention design. If implementation fidelity is poor, children may not demonstrate expected growth in the targeted area. We hypothesize that there will be inconsistent levels of implementation fidelity due to various factors (e.g., interventionists' understanding of the training, background skills, and responsiveness to students' needs). Story Champs is an intervention designed to improve school-age students' spoken and written narrative language skills. In this study, recordings of intervention sessions by one of four pre-professional interventionists to small groups of students entering 2nd through 4th grade, with literacy and/or language difficulties, during an intensive six-week summer camp were coded for fidelity. Fidelity scores were based on structure/content, which demonstrates adherence to the lesson plan, and process/quality, which reflects teaching methods (e.g., behavior management, pacing). Scorers were trained to adhere to a researcher-developed scoring protocol based on the intervention lesson plans. Content and process fidelity raw scores will be derived for each interventionist. Scores will be collated to determine if interventionists achieved high, medium, or low levels of fidelity. Scores will be compared across interventionists to identify any significant differences in fidelity achievement. We will also examine the specific areas in which interventionists differed. Results on potential inconsistencies in interventionist fidelity, may affect children's learning outcomes. If variability in fidelity is observed, future research will examine whether fidelity scores correlate with child narrative language growth. This would highlight the importance of curriculum fidelity and may have implications for the development of interventionist training.

POSTER

Speakers

A **Alexis Camejo**
Lead Presenter | H - 1

A **Allyx Faretta**
Co-Presenter | H - 1

Understanding the Role of a Novel Gene in Parkinson's Disease Through Stem Cell-Based Modeling

1:00 PM – 2:55 PM

UNDERGRADUATE

Parkinson's Disease (PD) is the second most common neurodegenerative disorder and is characterized by the progressive loss of midbrain dopaminergic neurons, driven by genetic mutations, environmental exposures, and aging. Current animal systems in use have their limitations in providing accurate mechanistic insight, while human studies have largely been restricted to post-mortem tissue. Stem cell-based models provide a powerful approach, allowing for the study of live neurons, though limitations from the loss of aging and epigenetic factors from induced pluripotency remain. While PD-associated mutations are both familial and sporadic, sporadic mutations make up the majority of PD cases. Well-studied genes such as SNCA, LRRK2, and GBA offer insight into affected pathways in PD, yet many risk genes remain unidentified and unstudied. In this project, we investigate a novel candidate gene (Gene X) with limited functional information that was identified from bulk RNA sequencing and single-nucleotide analyses of PD patients. Using human pluripotent stem cells, we generate midbrain dopaminergic neurons and knock out or overexpress Gene X to study how endolysosomal trafficking mechanisms are altered and identify its contributions to PD. Dopaminergic differentiation efficiency in KO, OE, and CTRL cultures is assessed using MAP2 and tyrosine hydroxylase (TH) immunostaining with quantitative image analysis. This work aims to define the role of Gene X mutations in PD pathogenesis and identify the mechanisms affected for therapeutic targeting.

POSTER

Speaker

B **Ben Etheridge**
Lead Presenter | H - 1

Knowledge, Attitudes, and Barriers Toward HPV Vaccination in the Cucapá Community

1:00 PM – 2:55 PM

UNDERGRADUATE

This exploratory study examines the knowledge, attitudes, and sociocultural barriers influencing the acceptance of the Human Papillomavirus (HPV) vaccine among the Indigenous Cucapá community in Mexicali, Baja California. Through semi-structured interviews with mothers, adolescents, and community health promoters, the study identified a limited understanding of HPV and its link to cervical cancer, as well as distrust toward the health system and a lack of information in culturally and linguistically relevant formats. In fact, more than 80% of the community remains unvaccinated.

The main barriers identified include restricted access to health services, the absence of culturally adapted educational campaigns, and traditional beliefs that shape decision-making around sexual and reproductive health. Despite these challenges, positive attitudes toward disease prevention were observed when information was presented clearly, respectfully, and by trusted community actors.

The findings highlight the need for culturally sensitive vaccination programs that involve the active participation of community leaders and healthcare personnel trained in intercultural approaches. Such efforts are essential to close gaps in preventive health and advance equity among Indigenous border communities.

POSTER

Speaker

C **Christine Valadez**
Lead Presenter | H - 1

Muscle recovery from lengthening contractions is impaired in mice with lung-specific TNFa expression

1:00 PM – 2:55 PM

UNDERGRADUATE

Pulmonary inflammation produced by tobacco smoking increases pro-inflammatory cytokines and cigarette smoke (CS)-related chemicals in the bloodstream, which delays the recovery from eccentric exercise-induced muscle damage (EEIMD). However, it is unknown whether lung-derived pro-inflammatory cytokines, independent of CS-related chemicals, affect recovery from EEIMD. This study investigated the effects of lung-specific TNF-α overexpression on the recovery of locomotor muscle force and myofiber growth after a session of lengthening contractions. Transgenic heterozygous male mice with lung-specific tumor necrosis factor-alpha (SP-C/TNF-α, Tg+/-, n=9) and transgene negative (Tg-/-, n=6) littermates (4-5 months old) were subjected to electrical nerve stimulation to evoke a lengthening contractions protocol (LCP) of the anterior crural muscles (ACM) in one hindlimb. In vivo torque was measured on days 2, 7, and 14 post-LCP. On day 14, ex vivo force was measured in the extensor digitorum longus (EDL), and myofiber cross-sectional area (CSA) was measured in the tibialis anterior (TA) by immunohistochemistry. Data were compared between legs and genotypes using analysis of variance and reported as mean ± standard deviation. Tg+/- exhibited greater lung TNF-α concentration than Tg-/-. In vivo torque was reduced by 37% in Tg-/- and 31% in Tg+/- 2 days after LCP (P>0.05), and by 14 days it was not different between genotypes. Ex vivo maximal EDL force from the uninjured leg was not different between genotypes (402±152 kPa for Tg-/- vs 409±57 kPa for Tg+/-, P>0.05), but from LCP-subjected legs was significantly lower (P=0.0021) in Tg+/- (381±46 kPa) vs Tg-/- (450±17 kPa). Myofiber CSA from the uninjured leg was not different between genotypes (1051±226 μm² for Tg-/- vs 1216±514 μm² for Tg+/-, P>0.05), but from LCP-subjected legs was significantly lower (P=0.0021) in Tg+/- (768±111 μm²) vs Tg-/- (1087±471 μm²). The data indicate that pulmonary inflammation, independent of CS-related chemicals, contributes to the delayed recovery from EEIMD detected in smokers.

POSTER

Speaker

E **Eli Whitman**

Lead Presenter | H - 1

Lived experiences of Chinese-speaking individuals with aphasia: implications for clinical practice

1:00 PM – 2:55 PM

UNDERGRADUATE

Aphasia is a language disorder caused by acquired brain injury that significantly impacts quality of life. Although aphasia research is predominantly quantitative, qualitative approaches are critical for capturing the lived experiences of individuals with aphasia (IWA), particularly those from culturally and linguistically diverse backgrounds. This study explores the experiences of five Chinese-speaking IWA living in the US, focusing on their interactions with speech-language pathology services, sudden changes in life post-injury, and challenges of navigating through recovery in an English-dominant context. All participants identified as Asian females aged 33 to 71 (average = 50.6 years), grew up in Chinese-speaking households, and learned English in school. Four participants developed aphasia following stroke and one following traumatic brain injury. In-depth virtual interviews were conducted using a bilingual, aphasia-friendly, semi-structured interview guide. All interviews were recorded, transcribed and analyzed using thematic analysis, which included data familiarization, open and focused coding, and theme generation. Open coding was completed in an iterative manner across multiple team members, yielding 102 initial codes or subthemes. Through group conversation, these subthemes were reduced to 90 subthemes that were coded in NVivo across all five participants. These subthemes were arranged into thematic clusters yielding a total of 12 emerging themes that fall under three overarching categories: 1) themes related to self, 2) themes related to the environment, and 3) themes related to bilingualism and culture. Participants highlighted the need for greater access to bilingual practitioners and culturally relevant resources. Patterning of themes will be examined with respect to participant etiologies. Findings emphasize the importance of tailoring aphasia care to the linguistic and cultural realities of bilingual individuals and call for broader community and clinical awareness to support holistic recovery.

POSTER

Speakers

E **Emily Zhang**

Lead Presenter | H - 1

A **Abigail Butler**

Co-Presenter | H - 1

Examining sports participation among rural youth: A national survey

1:00 PM – 2:55 PM

UNDERGRADUATE

Background: Physical activity has been proven to improve heart health, metabolism, muscle and bone strength, among other benefits. Studies have shown that sports build on these benefits, allowing individuals to form lasting connections and create meaningful experiences. However, what is often overlooked is the lack of sports access for youth in rural areas.

Purpose: This project aims to examine sports participation among a national sample of youth aged 6-17 years living in the rural United States. The goal is to identify whether significant barriers or limitations exist that restrict their involvement in sport-related activities.

Methods: This national, cross-sectional survey was conducted in April 2025 among rural-dwelling parents of youth aged 6-17 years. Participants were asked a series of questions regarding their child's participation in sports and physical activity. Sports participation was defined as "participating in at least one organized sport within the past year." Percentages, means, and standard deviations were calculated based on the responses and then used for extensive statistical analysis.

Results: The sample included 400 participants, of whom 44% identified as male and 78.4% identified as White. The average age was 11.88 years (SD = 4.72). Just over half of the sample (56.3%) reported playing sports, with participation rates of 53.9% among children ages 6-11 and 58.5% among adolescents ages 12-17. Overall, 58.1% of all respondents expressed a general interest in playing sports. Most sports involvement occurred through school-based programs (35.9%), with fewer participants involved in community sports (27.1%). Only a small proportion of youth (7.0%) played at an elite or highly competitive level.

Discussion: Our findings indicate that youth in rural areas have limited access to physical recreation opportunities, resulting in less participation in organized activities. Notably, participation in physical activity and sports declines as children age, raising important concerns for long-term health and engagement.

POSTER

Speakers

K **Kamlyn Huang**

A **Alyssa Prado**

Co-Presenter | H - 1

Executive function in children with reading disorders: Insights from an intensive language program

1:00 PM – 2:55 PM

UNDERGRADUATE

Narrative language interventions are designed to improve narrative language skills; however, less is known about their indirect effects on cognition, including executive function. This study examines the relationship between an intensive language intervention and executive functioning in school-age students. Ten school-aged participants (age 7;0-9;3 y/o) with reading disorders participated in a six-week literacy and language summer camp. In this camp, students received 1 hour each of narrative language instruction and code-based spelling instruction three times a week for six weeks. To assess the impact of the narrative language intervention on executive function, working memory and inhibition, measures were administered three times to establish a baseline before the intervention and once per week during the six-week intervention phase. Working memory was assessed using a verbal sentence-repetition task that gradually increased in length and complexity. In contrast, inhibitory control was assessed using a computer game implemented in PsychoPy to measure participants' accuracy and reaction time. Total scores for the executive function tasks will be calculated and graphed at each time point for each participant, and then analyzed using visual analysis procedures for a single-case study design. By examining changes in executive functioning skills during an intensive narrative language intervention, we aim to describe the relationship between language and cognition. Our study aims to contribute to the present understanding of language development within the context of other cognitive functions. If a correlation is present, it may support growth in these skills among children with language and literacy difficulties through language-based interventions. A goal of this research is to better understand the relationship between language and cognition, which could impact intervention practice for children with language and literacy disorders.

POSTER

Speakers

L **Lauren Turner**

San Diego State University

M **Madelaine Torgerson**

Co-Presenter | H - 1

H - 10: Biological and Agricultural Sciences (U) 4

1:00 PM – 3:00 PM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

E **Elissa Martin**

Lead Presenter | H - 10

J **Jazlyn Piera**

Lead Presenter | H - 10

Katrina Ferrer
Lead Presenter | H - 10

Mani Golshani
Lead Presenter | H - 10

Mariana Rayburn
Lead Presenter | H - 10

Neenah Mendez
Lead Presenter | H - 10

Samuel Curiel
Lead Presenter | H - 10

Yiannis Alvarado
Lead Presenter | H - 10

Effects of ocean acidification and trophic cascade on Zostera marina physiology

1:00 PM – 2:55 PM

UNDERGRADUATE

Eelgrass (Zostera marina) is a foundational primary producer in a trophic cascade including fish and grazers. Ocean acidification, resulting from increased absorption of atmospheric CO2, affects marine ecosystems in a variety of ways by changing seawater chemistry. This study aimed to investigate how ocean acidification and trophic interactions influence the physiology of eelgrass, measured in phenolic content, carbon to nitrogen (C:N) ratio, wight loss, and growth. The experiment consisted of 40 mesocosms containing combinations of eelgrass, fish, and grazers, with CO2 bubbled into flow-through bay water. A 0.3 pH difference was maintained via an Arduino-based microcontroller, alongside natural variation. Eelgrass phenolic content, C:N, weight loss, and growth were measured. Weight loss increased most when predators were absent, and also increased under OA. Trends were present for decreased C:N, increased phenols, and decreased growth under OA. Additionally, growth increased when grazers were absent. Reduced growth, increased phenols, and decreased C:N suggest that eelgrass experiences more stress under OA.

POSTER

Speaker

Elissa Martin
Lead Presenter | H - 10

Growth Performance and Nutrient Composition of Black Soldier Fly Larvae Reared on Diverse Food Waste

1:00 PM – 2:55 PM

UNDERGRADUATE

Despite growing food insecurity, about 35% of the total food supply in the United States is sent to landfills, causing greenhouse gasses in the form of carbon dioxide and methane to be released into the atmosphere during decomposition. One proposed solution to reduce food waste in landfills is black soldier fly larvae (BSFL) composting, which produces animal-feed biomass and nutrient-dense frass as biofertilizer. However, research is still required to determine the scope of BSFL efficacy for local food waste.

In this study, we evaluated BSFL growth performance, feed conversion, and nutrient composition across diverse food waste categories. Food waste was acquired from the San Diego State University Children's Center and sorted into four groups: 1) chicken, 2) fruits and vegetables, 3) starch-rich foods, and 4) a mixed diet combining groups 1-3. BSFL were reared for 14 days, and growth was monitored by measuring larvae width, length, and weight on days 1, 7, and 14. Proximate composition of food waste and BSFL biomass were also analyzed. Growth performance, feed conversion ratio, and nutrient composition were analyzed using ANOVA followed by Tukey's HSD test ($\alpha = 0.05$).

BSFL raised solely on chicken failed to reach the prepupal stage and showed stunted growth, reduced activity, and lower gains in body length and width compared with the other diets. In contrast, the starch-rich and mixed-waste groups demonstrated the highest growth performance and feed-conversion efficiency. While larvae fed on chicken amassed the highest protein content, this diet lacked sufficient carbohydrates and other essential nutrients to support normal development. Larvae derived from starch-rich and mixed diets showed more balanced nutrient composition, indicating improved bioconversion efficiency.

These results demonstrate the importance of a diversified, carbohydrate-rich waste stream for optimal BSFL growth and nutrient transformation. Findings suggest that varied food waste is suitable for BSFL-based composting systems and can support bioconversion for sustainable waste management.

POSTER

Speaker

Jazlyn Piera
Lead Presenter | H - 10

Gold Nanoparticle and Rare Earth Element Binding Protein Bioconjugation to Analyze Binding Identity

1:00 PM – 2:55 PM

UNDERGRADUATE

Rare earth elements (REEs) are a series of metals that, due to their unique chemical properties, see high usage and value as technological and medical components. However, because of the near-identical characteristics seen within the group, mining and separating these elements from one another proves to be difficult. These difficulties extend to analyzing proteins centered around REEs. Protein Gβ1, a protein that dimerizes only in the presence of metals, was reengineered to specifically dimerize in the presence of REEs. Due to the aforementioned physicochemical properties commonly observed in lanthanides, analysis pertaining to the lanthanide binding parameters for these rare earth element binding proteins (REE-BPs) proves challenging. Our research aims to develop an efficient method of determining the thermodynamic and kinetic binding parameters of these REE-BPs, specifically toward the lanthanide series. Determining these properties can allow for the fine-tuning and further investigation of the reactions and processes that these proteins engage in. In studying these properties, we incorporate gold nanoparticles (AuNPs) onto our proteins via cysteine linkers located on the C-terminus, the sensitive nature of AuNPs allowing for critical analysis of submicromolar concentrations. As of now, we have expressed and purified our REE-BPs of interest from E. coli, and we expect to lead into testing successful conjugation with gold and subsequent analysis. Prospective results aim to incorporate our findings into REE-specific projects, including the development of more environmentally friendly and efficient biomining methods for these metals, as well as specialized binding that focuses on the prospective reuse of REEs, thereby further lowering the environmental footprint associated with these metals.

POSTER

Speakers

K **Katrina Ferrer**
Lead Presenter | H - 10

C **Connor Gross**
Co-Presenter | H - 10

The Language of Leaves: Assessing Humulus lupulus Cultivar Sensitivity to Water Stress in San Diego

1:00 PM – 2:55 PM

UNDERGRADUATE

Humulus lupulus (hops) are important cone-producing vines used in brewing. San Diego's hop industry faces challenges from emerging heat and drought, as hop production saw a 21% decline in 2023. In this experiment, five different cultivars of hops (CTZ, Centennial, Cascade, Chinook, Comet) were analyzed and measured in terms of leaf area and circularity under three different treatments (100%, 75%, 50%) to determine their response to drought. Leaf area and circularity respond quickly to drought, making them effective indicators for measuring drought response. Mature plants were photographed and analyzed using ImageJ, and significant differences among cultivars were assessed using ANOVA followed by Tukey's post hoc tests in RStudio. In terms of leaf area, CTZ and Comet displayed the highest leaf areas among all the cultivars. Comet also displayed the lowest leaf circularity, indicating increased leaf distortion in order to retain water. Cultivars such as Comet that display high leaf distortion while also maintaining high leaf area demonstrate better fitness and efficient biomass production under drought conditions. These specific drought responses highlight CTZ and Comet as resilient options for curtailing hops production decline in San Diego, CA.

POSTER

Speaker

M **Mani Golshani**
Lead Presenter | H - 10

Engineering Sustainable Biomaterials Utilizing Praying Mantis Proteins and Cellulosic Waste Streams

1:00 PM – 2:55 PM

UNDERGRADUATE

The goal of this project is to develop novel, biodegradable biomaterials that could serve as sustainable replacements for much of the plastic prevalent in modern society. To achieve this, we employ protein design methods to combine fibrous praying mantis egg-case proteins (Fibroin 1 and 2) with cellulose-binding proteins. Female praying mantises lay their eggs in autumn, initially depositing them in a froth-like substance composed primarily of Fibroin 1 and 2. This protein-based froth subsequently solidifies into a material with physical properties similar to nonbiodegradable Styrofoam. The resulting structure protects the eggs from freezing or drowning during harsh winter conditions and allows the young to emerge when warmer temperatures return in spring. To produce a sustainable biomaterial inspired by this system, we are cloning the genes encoding the fibroin proteins in tandem with a gene encoding a cellulose-binding protein. The fusion of egg-case proteins to a cellulose-binding protein is intended to strengthen the resulting material upon incorporation of cellulose. Cellulose will be sourced from cellulosic waste streams such as palm fronds, hydroponic onion roots, and sugarcane bagasse. Expression of Fibroin 1 and 2 in tandem with cellulose-binding proteins will be tested on the surface of E. coli using a bacterial surface display (BSD) system, followed by purification using non-chromatographic biochemical methods. The purified protein will then be mixed with waste-derived cellulose and induced to form a Styrofoam-like foam through gas-pressurized extrusion. Different protein-to-cellulose ratios and protein cross-linking chemistries will be evaluated with the goal of generating a fully biodegradable replacement for Styrofoam-based products. Overall, this research represents a promising application of modern biotechnology toward the development of more sustainable materials.

POSTER

Speakers

M **Mariana Rayburn**
Lead Presenter | H - 10

M **Melody Alavi**
Co-Presenter | H - 10

Physiological Response of Mytilus galloprovincialis to Estuary Water Quality Changes

1:00 PM – 2:55 PM

UNDERGRADUATE

Los Peñasquitos Lagoon, a coastal estuary in Southern California, experiences frequent changes in water quality driven by terrestrial runoff and seasonal mouth closures. To endure these shifts in environmental conditions, bivalves must change their behavior and physiology through fluctuating heart rate and opening or closing the shell valves. One of the bivalve species found in large quantities in Los Peñasquitos Lagoon is the non-native Mediterranean mussel Mytilus galloprovincialis, which have been found in San Diego since the 20th century. Since then, these bivalves have managed to spread to estuaries across Southern California, including Los Peñasquitos Lagoon. We monitored the cardiac and valve-gaping activity of M. galloprovincialis in the field using biosensors that non-invasively collect heart rate and gape data. These findings were compared to the concurrent abiotic water quality conditions, such as temperature, dissolved oxygen, and salinity, in Los Peñasquitos Lagoon to evaluate how oysters responded to short-term environmental changes.

POSTER

Speaker

Neenah Mendez

Lead Presenter | H - 10

Effects of chronic cigarette smoke exposure on diaphragm force and myofiber cross-sectional area aft

1:00 PM – 2:55 PM

UNDERGRADUATE

Mechanical ventilation (MV) is a life-saving strategy for individuals in critical care. Still, it may promote rapid deterioration in diaphragm contractile capacity, a process known as Ventilator-Induced Diaphragm Dysfunction (VIDD). Individuals with a history of pulmonary inflammatory diseases and smokers, when subjected to MV, frequently require special care since they have a greater risk of death, which is attributed to a faster weakening of the diaphragm. This study investigated whether cigarette smoke (CS) exposure in mice alters diaphragm force and myofiber cross-sectional area during a short period of MV. Wild-type adult male mice were randomly assigned to receive daily exposure for three months to either CS (n=16) or Air (n=17). After the exposure period, mice were either subjected to four hours of MV under neuromuscular blockage or not ventilated as controls. The diaphragm for each mouse was dissected, tested for ex vivo contractility, and the myofiber cross-sectional area was measured by immunohistochemistry. Data were compared between exposures and in vivo procedures using analysis of variance and reported as mean ± standard deviation. Body weight was lower in CS-exposed vs Air-exposed mice (Exposure effect, P=0.018) regardless of the in vivo procedure. Plasma angiotensin II was significantly higher in MV-subjected mice (Ventilation effect, P=0.0081), irrespective of the exposure group. In air-exposed mice, force did not differ between MV and non-MV mice (23 ± 3 vs 22 ± 5 N/cm 2 , respectively, P>0.05). However, in CS-exposed mice, force was significantly lower in the MV (18 ± 3 N/cm 2) compared to non-MV (26 ± 7 N/cm 2) mice (P=0.003). The data indicate that smoke exposure accelerates the development of VIDD.

POSTER

Speaker

Samuel Curiel

Lead Presenter | H - 10

Identification of Novel Drosophila Proteins, Uchmaz and Zspo, and Their Roles in Muscle Assembly

1:00 PM – 2:55 PM

UNDERGRADUATE

The Z-disc plays a critical role in the structural anchoring of actin filaments aiding in the organization and functionality of the muscle. Z-disc protein's importance in myofibril stability is understudied despite its involvement in critical structural components and interactions. Alp/Enigma family protein Uchmaz (CG42319) which contains a PDZ-domain and Zspo a protein containing only the ZASP domain were characterized through overexpression/ knockdown using CRISPR/Cas 9 in Drosophila. Mutants of Zspo and Uchmaz demonstrated altered flight ability in flight tests, with disrupted Z-disc and sacromeric organization in the indirect flight muscles (IFMs) impeding flight. Mutant Z-discs, imaged using immunohistochemistry staining and confocal microscopy, appeared disorganized and globular with reduced α-actinin accumulation. Both Uchmaz and Zspo were found to be localized at the Z-disc with Uchmaz dependent on α-actinin for localization. Our results indicate that Zspo and Uchmaz are required for muscle function and Z-disc stability in IFM myofibril structure. These findings provide insight into the human ortholog of Uchmaz called PDLIM2 and the conserved mechanism of Z-disc assembly function, which is associated with severe muscular dysfunction, dystrophies and myofibrillar myopathies.

POSTER

Speaker

Y **Yiannis Alvarado**
Lead Presenter | H - 10

H - 11: Physical and Mathematical Sciences (U) 1

1:00 PM – 3:00 PM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

B **Brian Yang**

Darragh Howard

G **Gabriel Deleon**
Lead Presenter | H - 11

J **Jae Yoon Lee**
Lead Presenter | H - 11

J **Jayna Snyder**
Lead Presenter | H - 11

J **Jericho Reyes**
Lead Presenter | H - 11

M **Marlene Galke**
Lead Presenter | H - 11

M **Mia Chalfin**
Lead Presenter | H - 11

Advancing Green Hydrogen Circularity via Biomass-Derived Intermediates on Transition-Metal Catalysts

1:00 PM – 2:55 PM

HIGH SCHOOL - WORKING WITH SDSU FACULTY

The intermittency of solar and wind energy, which are used to mitigate climate change, necessitates energy storage. Hydrogen has emerged as a suitable energy storage medium, storing energy in chemical bonds that can be transported and converted back into electrical energy. The current method of hydrogen production, methane reforming, emits greenhouse gases, necessitating a greener approach to generating hydrogen, such as electrochemical water splitting. However, water splitting is currently not commercially competitive due to high costs. Water splitting is hindered by the use of precious metals and by sluggish reaction rates, owing to the complex multi-electron transfer of the oxygen-evolution coupled half-reaction (OER) at the anode. OER supplies electrons to the cathode, which produces hydrogen. Adding biomass feedstocks, such as glycerol, enables oxidation of the biomass with lower energy input than water, while yielding valuable products. Additionally, replacing precious metals in catalysts with less expensive, non-toxic, and abundant transition metals enhances the competitiveness and sustainability of water splitting. Our research group found that transition metal electrocatalysts, such as Cu-Ni catalysts, overoxidize C3-C6 biomasses through carbon-carbon bond cleavages to form C1 products such as formate. However, selectivity towards highly economically valuable intermediates remains elusive. In this project, we address sluggish OER reactions, optimize transition-metal electrocatalysts, and mitigate overoxidation of valuable intermediates. We modified the biomass oxidation reaction by altering the Cu-Ni electrocatalyst, adjusting reaction conditions, and adding additives to capture valuable intermediates. Efficient biomass oxidation using abundant, non-toxic, and inexpensive transition-metal electrocatalysts that capture intermediates can increase “green” hydrogen production rates and add value to the reaction, thereby enhancing competitiveness relative to methane reforming.

POSTER

Speaker

Brian Yang

Nontargeted Chemical Analysis of Tijuana River Sediment to Assess Environmental Pollutants

1:00 PM – 2:55 PM

UNDERGRADUATE

The Tijuana River, a transboundary waterway spanning Baja California and southern San Diego, has become a major environmental and public health concern due to chronic pollution from untreated sewage. As part of SDSU’s HealthLINK initiative, a research center which aims to address health disparities across a variety of disciplines, our team is investigating chemical contaminants in river-associated sediment. Contaminated sediment along the Tijuana River may become resuspended as dust and migrate into homes, potentially contributing to indoor pollution in nearby homes and increasing health risks for residents–especially children. Our research aims to identify and characterize chemical contaminants present in Tijuana River sediment using non-targeted analytical methods to better understand environmental exposures affecting neighboring communities. Sediment serves as a long-term reservoir for pollutants, making it a valuable matrix for non-targeted analysis, wherein samples are comprehensively screened for chemical contaminants. Furthermore, understanding sediment contaminants is important for assessing ecological risks, potential human exposures, and pollution persistence in the Tijuana River watershed. Sediment samples were collected at four different sites in the Tijuana River Valley, and at one control site at Scripps Pier. Sediment was sampled at a near-surface depth of 5-10cm and field blanks were collected at each site. Samples are being prepared for analysis using a modified QuEChERS protocol, including extraction with ethyl acetate, followed by a cleanup procedure using dispersive solid - phase extraction. The final extracts are to be analyzed using a GC×GC-TOF MS instrument to identify a wide suite of known and unknown organic contaminants present in the sample. Completion of non-targeted analysis will allow for identification of contaminants present in sediment, provide further insight into markers of Tijuana River pollutants, and guide future work to measure contamination in indoor dust and potential health risks in nearby communities.

POSTER

Speaker

Darragh Howard

Assessing DFT-based predictions of redox potentials for electrochemical trifluoromethylation reagent

1:00 PM – 2:55 PM

UNDERGRADUATE

Trifluoromethylation (TFM), i.e., the introduction a –CF3 group into a given substrate, plays a critical role in the late-stage functionalization of pharmaceuticals. Established strategies typically involve a TFM reagent, which produces trifluoromethyl radicals when activated by strong oxidants/reductants or under photochemical conditions. In this work, we investigate the feasibility of electrochemical TFM strategies for aromatic substrates using computational tools, which offer the advantage of being photocatalyst-free. Specifically, we employ density functional theory (DFT) calculations with implicit solvent models (for typical solvents in electrochemical organic synthesis, such as acetonitrile and dimethyl sulfoxide) to predict the oxidation or reduction potential of common aromatic substrates (arenes, arene derivatives, and heterocycles such as imidazole and pyridine) and TFM reagents (Langlois, MacMillan, Boc-hydrazine-CF3, Ritter, etc.). These redox potentials are key parameters that determine whether a given TFM reagent is applicable to a particular substrate, since their redox windows must be well separated to avoid undesirable side reactions. The accuracy of our computational approach is verified by comparing the computed oxidation potential of the Langlois reagent (CF3SO2Na) and the reduction potential of the MacMillan reagent (CF3SO2Cl) with corresponding experimental values measured by cyclic voltammetry, thereby supporting its subsequent application to a broader range of substrates and TFM reagents. Our computational results will provide a useful library to guide the selection of suitable TFM reagents for diverse aromatic scaffolds. The errors for the Langois reagent is around 0.28 V with the best performing functionals, while for the Ritter reagent (S-(Trifluoromethyl)thianthrenium tetrafluoroborate), there is a significant discrepancy between the DFT results and the experimental values.

POSTER

Speaker

Gabriel Deleon

Lead Presenter | H - 11

Assessment of Theoretical Methods for Accurate Prediction of Rotational Barrier Between Atropisomers

1:00 PM – 2:55 PM

UNDERGRADUATE

Accurate prediction of rotational barriers between atropisomers is critical for computational drug design, as low barriers permit interconversion under physiological conditions and can compromise the effectiveness of atropisomeric drugs. Here, we benchmark two complementary computational strategies for quantifying these barriers against values obtained from higher-level density functional theory (DFT) calculations, which serves as a rigorous approach for computing ΔG‡. Transition-state (TS) searches were performed with DFT to provide well-defined structures and reliable free-energy barriers, forming the basis for our reference dataset. Based on this reference, we then evaluate the accuracy of one-dimensional potential energy surface (PES) scans, a widely used low-cost alternative, analyzing the highest-energy structures obtained from the scan and identifying conditions under which these scans yield reliable ΔG‡ estimates. In addition, we assess the UMA (Universal Models for Atoms) machine-learning (ML) interatomic potential for rapid optimization of R/S atropisomers and their corresponding TS structures. Direct comparison of UMA-derived energetics and geometries with DFT provides a quantitative evaluation of the ML accuracy for stereochemical and conformational analysis. In summary, this study delineates the strengths, limitations, and computational efficiencies of PES scan-based and ML-based approaches relative to rigorous TS calculations using DFT, providing valuable guidance for reliably predicting the possibility of interconversion between atropisomeric drugs.

POSTER

Speaker

Jae Yoon Lee

Lead Presenter | H - 11

Method for estimating the basic reproduction number of vector-borne diseases

1:00 PM – 2:55 PM

UNDERGRADUATE

Infectious diseases remain a leading cause of global morbidity and mortality, necessitating continuous development of evidence-based public health interventions to effectively limit their transmission. Accurate estimation of the basic reproduction number (R0), the threshold that represents the average number of secondary cases generated from a single infected individual in a completely susceptible population, is critical for designing and evaluating public health policies for epidemic preparedness. Current R0 estimation methods using incidence data are inappropriate for vector-borne diseases because of the indirect transmission pathway with the vector and human as the alternative second generation in succession. In addition, the lack of sufficient vector incidence data poses further challenges to R0 estimation of vector-borne diseases. In this study, we develop a maximum likelihood-based novel method that incorporates the human-vector-human transmission pathway and uses the infected human incidence data. We implemented our method with Dengue fever (mosquito-borne) incidence data from Taiwan (2014 - 2015). A thorough sensitivity analysis was conducted on several parameters to understand the effect of disease generation time (time distribution of the infectious period) and data collection frequency on the basic reproduction numbers. The results demonstrate that our method yields a robust and accurate estimate of R0 for vector-borne diseases, providing a previously unavailable tool that is essential to the timely assessment and development of prevention strategies for vector-borne diseases.

POSTER

Speaker

Jayna Snyder

Lead Presenter | H - 11

Fast Heterogeneous Catalysis Using Perovskite Nanocrystals for Hydrocarbon Aromatization

1:00 PM – 2:55 PM

UNDERGRADUATE

Heterogeneous catalysis, though often slower than homogeneous catalysis due to mass transfer and adsorption limitations, is favored in industry for its facile separation, reusability, and scalability. Overcoming heterogeneous limitations demands innovative catalyst architectures and reaction designs. Here we report a lead-halide perovskite nanocrystal (NC) heterogeneous catalytic system that achieves exceptionally fast hydrocarbon aromatization, with turnover frequencies (TOFs) up to $103s^{-1}$, enabling kilograms of benzene formation from cyclohexene with milligrams of catalyst loading under ambient condition. Driven by a radical chain mechanism with over 104% quantum yield under visible-light, this system exhibits broad functional group tolerance, aromatizes substituted cyclohexenes with high selectivity, and extends to acyclic olefins via a photocatalytic [4+2] aromatization route. Our perovskite catalysis thus offers a transformative highly reactive avenue to complex arenes and heteroarenes, bridging gaps between heterogeneous and homogeneous catalysis.

POSTER

Speaker

J **Jericho Reyes**

Lead Presenter | H - 11

Enhancing Photocatalytic CO_2 Reduction Efficiency Using Chiral-Modified CdS Through the CISS Effect

1:00 PM – 2:55 PM

UNDERGRADUATE

Photocatalysis is a sustainable process where light energy is used to power chemical reactions. This enables a sustainable approach to convert carbon dioxide into useful compounds. CO_2 is one of the main greenhouse gases contributing to climate change, therefore, it is beneficial to find an effective way to transform it into sustainable energy alternatives. Photocatalysis was utilized to reduce CO_2 with Cadmium sulfide (CdS) as a photocatalyst. A catalyst helps speed up a chemical reaction without being used up via regeneration. Although CdS is known to efficiently absorb visible light, its effectiveness may be limited by rapid electron and hole recombination and inadequate charge separation.

To solve this issue, we placed a chiral molecule onto the surface of the CdS catalyst. The purpose of adding this chiral chemical was to benefit from the chiral induced spin selectivity (CISS) effect, which can align the spin of electrons when electrons passing through a chiral molecular layer. Thus, it is believed that the spin-polarization effect could improve the charge separation / electron transport of the CdS.

In our experiment, with and without the chiral molecule, the CdS catalyst's performance was evaluated. The pristine CdS catalyst had moderate CO_2 to CO yield of 77.17042667 umol/g•h. However, once the chiral molecule (S-BNP+CdS) was introduced, it was seen that the CO_2 reduction yield improved to 198.073085 umol/g•h, demonstrating that the CISS effect had a positive impact on photocatalytic performance.The characterization technique: Fourier transform infrared spectroscopy (FTIR) has been used to verify that the chiral molecule has successfully attached to the catalyst's surface.

Future work will include cycling experiments of the chiral layered CdS to study the stability of the catalyst. In addition, photoluminescence measurements will be taken to track the change in charge separation efficiency.

POSTER

Speakers

M **Marlene Galke**

Lead Presenter | H - 11

E **Edgar Castillo**

Lead Presenter | D - 3

Ultrasensitive Detection of Nanoplastics Using Laser Wave-Mixing Spectroscopy

1:00 PM – 2:55 PM

UNDERGRADUATE

Microplastics and nanoplastics are increasingly recognized as pervasive environmental contaminants found in water, food, and consumer products, raising urgent concerns about their biomedical and ecological impacts. We demonstrate an ultrasensitive, label-free optical detection platform for polyvinyl chloride (PVC), polypropylene (PP), and high-density polyethylene (HDPE) nanoplastics using nonlinear laser wave-mixing spectroscopy. Wave mixing is an absorption-based nonlinear optical technique that enables detection of analytes at the nanometer scale with excellent detection sensitivity, owing to its quadratic dependence on analyte concentration, short optical path length, and micrometer spatial resolution. This method is compatible with native plastic particles as well as fluorophore-labeled nanoplastics, offering flexibility for sensitive detection of nanoplastics that can contaminate our environment and invade our bodies and organs to inflict serious organ failures and diseases. In a laser wave-mixing setup, a coherent laser-like signal beam is generated when the two input laser beams are mixed inside the absorbing analyte. Hence, optical collection efficiency is excellent and the signal-to noise ratio is very high. The wave-mixing signal has a square dependence on analyte concentration and a cubic dependence on laser power, and hence, one can use compact low-power lasers to monitor small changes in analyte concentration. The detector probe volume (the overlap volume of the two input beams) is small (nanoliter to picoliter), and hence, wave mixing can be effectively interfaced to microfluidics and capillary-based electrophoresis systems. Since wave-mixing is an absorption-based method, both fluorophores and chromophores can be used as labels, if needed. A compact, wave-mixing detector has been designed and assembled, to detect trace amounts of PVC, PP, and HDPE nanoplastics for real-time monitoring in real-world settings.

POSTER

Speaker

M **Mia Chalfin**

Lead Presenter | H - 11

H - 12: Physical and Mathematical Sciences (U) 2

1:00 PM – 3:00 PM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

Carmen Devine
Lead Presenter | H - 12

Jaume Toomer
Lead Presenter | H - 12

Liam Nolan
Lead Presenter | H - 12

Mary Becker
Lead Presenter | H - 12

Oscar Cabrera
Lead Presenter | H - 12

Skylar Gibson

Vincent Cao
Lead Presenter | H - 12

Yousif Elia
Lead Presenter | H - 12

Armando Corona
Co-Presenter | H - 12

Trace Metal Effects in Photochemical Synthesis of Silver Nanoparticles

1:00 PM – 2:55 PM

UNDERGRADUATE

Silver nanomaterials are used in a wide range of applications, such as diagnostic, electronics, and catalysis. In photochemical silver nanoparticle synthesis utilizing visible light, trace metals impurities, such as iron, can dramatically influence reaction kinetics due to photoactive complexes they can form with citrate. The reaction kinetics directly affect the morphology of the synthesized silver nanoparticles, impacting their physicochemical properties. Our goal is to determine the role iron has on the reaction kinetics so that we can develop a procedure to produce silver nanoparticles of uniform size and shape consistently. Our current method of synthesis uses aqueous solutions of sodium citrate, iron citrate and silver nitrate exposed to a violet 404 nm LED. The principal control experiment consists of a reaction performed with no added iron, which has shown to slow the reaction progress significantly and produce larger final particle sizes. We study these reactions using time-resolved silver ion concentration, pH, UV-Visible absorption spectroscopy, Dynamic Light Scattering, and quantitative NMR.

POSTER

Speaker

Carmen Devine
Lead Presenter | H - 12

Tire and tobacco waste-derived chemical pollutants in sunlight exposed aquatic environments

1:00 PM – 2:55 PM

UNDERGRADUATE

Toxic chemicals derived from human activities such as smoking and driving have been known to enter aquatic environments with stormwater runoff during precipitation events. Due to photodegradation, they can potentially form chemical transformation products of a higher toxicity, the results of which have yet to be fully documented. This study focuses on the photo-degradation and photo transformation of tire wear particles (TWP))-derived compounds, 2,2,4-Trimethyl-1,2-dihydroquinoline (TMQ), N-(1,3-dimethylbutyl)-N′-phenyl-p- phenylenediamine(6PPD), 1-Cyclohexyl-3-phenylurea (CPU), and N-phenylurethane, and tobacco-derived compounds cotinine and nicotine, in ultrapure water after exposure to simulated sunlight for 6 hours. The effects of temperature on these compounds will be separately evaluated by heating the compounds to 35 degrees Celsius for the same period of time. For comparison, we also evaluated how natural compounds such as Suwannee River natural organic matter (SRNOM) and reference stands, including L-tryptophan and quinine sulfate, changed under similar exposure conditions. Changes in fluorescence peaks will be modeled using double exponential equations allowing for kinetic constants to be determined for each of the chemicals and compared to real concentrations quantified in the Hoh Lab at SDSU. These findings will provide an opportunity to view the fate of compounds derived from TWP and tobacco waste under sunlight within an aquatic setting while searching for possible patterns between fluorescence emission intensity and a chemical's ability to degrade in sunlight. This research will contribute to the understanding of chemical pollutants in our environment and methods to predict how chemicals with certain fluorescence properties will react to sunlight.

POSTER

Speaker

J **Jaume Toomer**
Lead Presenter | H - 12

Photochemical Tuning of Nanoparticle Size and Shape

1:00 PM – 2:55 PM

UNDERGRADUATE

Silver nanoparticles have applications in sensors, solar power, optics, and biomedicine because of their physicochemical properties. This has caused a demand for new methods of nanoparticle synthesis. Small nanoparticles can be produced by reducing silver ions with sodium borohydride, and these nanoparticles can be grown larger by exposure to visible light. However, sodium borohydride is hazardous and degrades in air, so the removal of sodium borohydride from the reaction would allow for a simplified, “greener” nanoparticle production. Prior experiments from our lab showed that small silver nanoparticles can be made without Sodium Borohydride if trace amounts of Fe(III) are added to a solution of Silver Nitrate and Sodium Citrate that is exposed to violet light (405nm). The aim of this project is to produce larger silver nanoparticles for a variety of applications by using short wavelengths of light (405nm) to produce small nanoparticles, and then exposing the nanoparticles to longer wavelengths of light to make larger nanoparticles, without Sodium Borohydride. To tune the size and shape of nanoparticles, we intend to control various parameters of the reaction. These include light wavelength, intensity, and exposure time, as well as reactant concentrations, and pH of the solution.

Initial experiments were conducted by exposing a reactant solution (200nM Iron Citrate + 200uM Sodium Citrate + 100uM Silver Nitrate) to a 405nm LED, followed by exposure to a green 520nm LED or red 633nm LED. The exposure times were varied to determine their effect on the nanoparticle size and shape. UV-Visable spectra were recorded at regular time intervals to track the growth. Dynamic Light Scattering was used to determine size distribution. Thus far we have seen that exposure to green or red light causes a red-shift (size increase) in the produced nanoparticles, while exposure to only violet light causes a blue-shift (size decrease) of initially formed nanoparticles. Future experiments intend to solidify the effect of pH and reactant concentrations on nanoparticle size and shape.

POSTER

Speakers

L **Liam Nolan**
Lead Presenter | H - 12

B **Bernadette Lopez**
Co-Presenter | H - 12

Imaging Dynamic Magnetic Fields with a Yb Magnetometer

1:00 PM – 2:55 PM

UNDERGRADUATE

Conventional magnetometers primarily provide scalar magnetic field measurements, limiting their ability to capture full vector components and spatially resolved maps in real time. This constraint hampers the study of complex, dynamic magnetic phenomena. Recent advances in atomic magnetometry, particularly the fluorescence imaging of thermal ytterbium (Yb) atoms have demonstrated high spatio-temporal sensitivity by visualizing magnetic field contours. By exciting atoms to new quantum states, we enable rapid two-dimensional vector field imaging. Building on this foundation, we extended the Yb atomic fluorescence magnetometer to two-dimensional imaging of dynamic magnetic fields by integrating a high-speed rotating permanent magnet synchronized with laser modulation to create stroboscopic imaging. By capturing multiple fluorescence images corresponding to different magnetic field pulse configurations at high speeds, we are able to derive meaningful data regarding field strength, dynamic interactions, and spatio-temporal dependence. Further development of this novel magnetometer could revolutionize magnetic field measurement across scientific and technological domains enabling breakthroughs from materials science to biomedical imaging.

POSTER

Speaker

M **Mary Becker**
Lead Presenter | H - 12

Deracemization of Atropisomeric Biaryl and Heteroaryl scaffolds to Access the Axial Chiral Quinoline

1:00 PM – 2:55 PM

UNDERGRADUATE

Axially chiral quinoline and heteroarene scaffolds are privileged motifs in bioactive molecules and chiral ligands, yet their enantioselective synthesis remains challenging. Traditional strategies rely heavily on de novo asymmetric synthesis or classical resolution, both of which suffer from limited substrate scope and efficiency. We report a novel deracemization approach that converts racemic axially chiral quinoline derivatives into their enantioenriched forms through one-pot, two-step redox-reactions. In the first step, chiral phosphoric acid (CPA) catalyzes the highly enantioselective hydride transfer from a Hantzsch ester to the quinoline core, generating a configurationally labile tetrahydroquinoline intermediate. Subsequent visible-light-driven oxidation using an inexpensive perovskite photocatalyst regenerates aromaticity with full stereo-retention, delivering the target axially chiral quinolines in high enantiomeric excess. This mild, operationally simple protocol exhibits broad functional-group tolerance and excellent atropselectivity across diverse substrates. Our redox deracemization strategy offers a powerful and sustainable alternative for accessing valuable enantioenriched axially chiral (hetero)arene scaffolds.

POSTER

Speaker

O

Oscar Cabrera

Lead Presenter | H - 12

Virus like Particle assembly of hypothetical coat proteins sourced from environmental RNA sequencing

1:00 PM – 2:55 PM

UNDERGRADUATE

Viral coat-proteins can self-assemble to form a higher order structure, also referred to as a capsid. When the capsid forms around genomic material, packaging it, a virus-like particle (VLP) is formed. Differences in the genomic sequence give rise to varied coat-proteins, and consequently novel VLPs, with unique chemical characteristics. We are investigating the feasibility of using in-vitro formed VLPs to develop a method of delivering therapeutic RNA sequences.

The Garrmann lab has developed a database of viruses found in environmental sequencing data. We selected one coat protein from one such virus and expressed it in E. coli. Through the use of gel electrophoresis and UV-vis spectrophotometry, we verified that the selected coat-protein formed VLPs. These VLPs have been characterized through Transmission Electron Microscopy (TEM), Interferometric Scattering Microscopy (iSCAT), and Thermal Shift Assays (TSA). We have subsequently explored in-vitro VLP assembly around foreign RNA sequences using chemically synthesized coat-proteins to verify the possibility of use as a vector for therapeutics without reliance on in-vivo methods.

POSTER

Speakers

S

Skylar Gibson

C

Connor Schiveley

Co-Presenter | H - 12

Development of a micro Silver Ion Concentration Cell for use in monitoring Silver Nanoparticles

1:00 PM – 2:55 PM

UNDERGRADUATE

The most widely used procedure of synthesizing silver nanoparticles involves the reduction of silver nitrate by sodium borohydride, in the presence of sodium citrate. Surprisingly, the mechanism of this reaction is still unknown. The overall goal of our work is to determine this mechanism via monitoring the concentration of all species as a function of time, requiring a number of different types of measurements (UV-Visible Absorption Spectroscopy, NMR, Dynamic Light Scattering, pH, Silver Ion Concentration Cell) depending on the type of species. While equipment for the first four types of measurements are available, measuring the silver ion concentration is more challenging and expensive. The Pullman lab has developed a small-scale silver ion concentration cell (“pAg cell”) that is simple to operate, inexpensive, and requires less than 100 microliters of sample solution. The “pAg cell” is a galvanic cell composed of small silver electrodes and a custom designed salt bridge. The specific goal of my work is to determine the sensitivity and reliability of the cell under a range of sample conditions. We are examining the effect on measured silver ion concentration by changing pH, concentration of silver nanoparticles, and concentration of potentially contaminant species. Thus far, the concentration of silver ions in an unknown solution can be determined down to a concentration of 1 micromolar, with an uncertainty of about 10%. This precision is sufficient for the mechanistic studies in silver nanoparticle production.

POSTER

Speaker

V

Vincent Cao

Lead Presenter | H - 12

Production of Metal-binding Fibers using Proteins Engineered to Bind Rare Earth Elements

1:00 PM – 2:55 PM

UNDERGRADUATE

Engineering a sustainable means of extracting and purifying valuable metals, especially Rare Earth Elements (REEs), is imperative as current methods are extremely damaging to many environments. In addition, separation technologies currently used to process REEs cause severe health issues for people working in this important yet dangerous industry. To address these issues, our laboratory is working to engineer fibers that could potentially be woven into filters used to purify REEs. To achieve this, we are incorporating metal-controlled dimer (MCD) proteins into a protein fiber production system currently under development in the Love Laboratory. Our interest in mimicking spider silk proteins is due to their outstanding chemical and mechanical properties, making them promising candidates for use in filtration media that could be used as an environmentally friendly means of purifying REEs. For this project, we are focusing on the expression and purification of MCD proteins using a bacterial surface display system. By tagging proteins with the fluorescent protein mCherry, we are able to visually confirm expression on the cell surface. Cells are then lysed, denatured with guanidine hydrochloride, and processed through detergent washes and further denaturation steps. The resulting purified proteins serve as input for fiber formation protocols. We are currently utilizing Scanning Electron Microscopy (SEM) and Energy-Dispersive Spectroscopy (EDS) to characterize the metal binding properties of the extruded fibers. This work provides hands-on experience with protein design methods, recombinant protein production, and contributes critical material to ongoing studies in the Love Laboratory that aim to engineer tunable protein-based fibers that can potentially be woven into REE purification material

POSTER

Speakers

Y **Yousif Elia**
Lead Presenter | H - 12

A **Armando Corona**
Co-Presenter | H - 12

H - 13: Biological and Agricultural Sciences (U/G) 1

1:00 PM – 3:00 PM | Location: Montezuma Hall

UNDERGRADUATE/GRADUATE

POSTER

Speakers

C **Ciera Garcia**
Lead Presenter | H - 13

E **Elisa Paider**
Lead Presenter | H - 13

J **Juan Cruz**
Lead Presenter | H - 13

M **Mariam Slewa**
Lead Presenter | H - 13

M **Mena Essa**
Lead Presenter | H - 13

R **Rana Yousif**
Lead Presenter | H - 13

R **Ranya Tobin**
Lead Presenter | H - 13

Y **Yohann Chheng**
Lead Presenter | H - 13

Telomere Dynamics as Biomarkers of Aging and Health in the South African Penguins

1:00 PM – 2:55 PM

MASTER'S

This research focuses on quantifying telomere length relative to the 18s reference gene to track cellular aging and stress resilience in American Flamingos. By analyzing longitudinal changes in telomere attrition, we aim to establish a reliable biological marker for population health and genomic stability in this avian species.

POSTER

Speaker

C **Ciera Garcia**
Lead Presenter | H - 13

Comparison of Crotalus Ruber Rattle Morphology Throughout the History of San Diego County

1:00 PM – 2:55 PM

UNDERGRADUATE

Rattlesnakes create a new segment at the base of the rattle every time they shed their skin (ecdysis), and the width of the new segment is directly correlated to the body size of the snake at the time it sheds. Thus, the widths of rattle segments on the rattle string can be measured and used to understand relative changes in growth and body size of a population throughout time. This study aims to determine whether urbanization in San Diego County has driven morphological changes in the Red Diamond Rattlesnake (Crotalus ruber) population. Historical specimens housed in the San Diego State University Biodiversity Museum and the San Diego Natural History Museum Herpetology Collection, collected prior to 1950, offer a baseline for growth patterns preceding extensive urban development. This data will be compared with contemporary rattle data from live, wild snakes residing in the same geographical areas. For each specimen, snout–vent length, tail length, and rattle segment dimensions were measured. Anthropogenic expansion is widely associated with wildlife population decline due to habitat and resource degradation. However, with the increase in urban areas comes the increase in human commensals, including rats which are a major prey item for rattlesnakes. Many people have a misplaced fear of rattlesnakes, despite their defensive bite having a fatality rate below 1%, and this extermination may impose selective pressure on their population. With all of these factors in play, we hypothesize that Crotalus ruber in urbanized landscapes exhibit reduced body growth and smaller rattle segment widths relative to pre-urbanization populations.

POSTER

Speaker

E

Elisa Paider

Lead Presenter | H - 13

Occupation-associated Epigenetic Age Acceleration among U.S. Hispanic/Latino Adults

1:00 PM – 2:55 PM

MASTER'S

Occupational exposures are an important social determinant of health that may contribute to accelerated biological aging, yet remain understudied among Hispanic/Latino populations in the United States. Hispanic/Latino adults have been largely underrepresented in research examining occupational determinants of biological aging, representing an important gap in the aging and occupational health literature. Epigenetic clocks provide biomarkers of biological aging that may capture early physiological effects of occupational risk.

This study uses data from the Hispanic Community Health Study/Study of Latinos (HCHS/SOL) to examine the association between occupational category and longitudinal change in epigenetic age acceleration (ΔEAA) among Hispanic/Latino adults. Epigenetic age acceleration is derived by regressing DNA methylation–based age estimates on chronological age at Visit 1 and Visit 2, with ΔEAA calculated as the difference between Visit 2 and Visit 1 residuals. Occupational categories include professional/technical/administrative, skilled, service, non-skilled, and other occupations. Survey-weighted linear regression models will be fit using a sequential modeling approach: Model 1 will adjust for sociodemographic characteristics; Model 2 will additionally adjust for behavioral factors; and Model 3 will further adjust for chronic disease indicators.

This work aims to characterize occupational differences in longitudinal biological aging and to evaluate whether behavioral and health-related factors account for observed associations. By focusing on a population that has been largely overlooked in prior research, this study seeks to contribute to a more comprehensive understanding of occupational influences on biological aging and inform future research on workplace-related aging disparities among Hispanic/Latino adults.

POSTER

Speaker

J

Juan Cruz

Lead Presenter | H - 13

Leveraging Bacterial Surface Display for the Synthesis of Spider Silk Fibers

1:00 PM – 2:55 PM

UNDERGRADUATE

Spider silk is a naturally occurring biomaterial known for its remarkable mechanical properties, including high tensile strength, elasticity, and biodegradability. Thus it is an ideal candidate for diverse applications in fields such as biomedical engineering, tissue scaffolding, and advanced materials. Spider silk has great potential, but large-scale production of spider silk fibers has proven challenging. In this study, we present a novel approach for producing spider silk fibers by utilizing a novel and highly robust bacterial surface display (BSD) technology. Specifically, we engineered an mCherry-tagged spider silk protein that very successfully expressed on the surface of E. coli. To induce fiber formation, the protein construct was expressed, purified, and lyophilized to dryness and then rehydrated with guanidine hydrochloride. The resulting viscous solution was the extruded into a coagulation bath. This method successfully it facilitated the assembly of spider silk fibers, and preliminary analysis indicated the fibers exhibited desired structural properties. The successful production of spider silk fibers through bacterial surface display may offer a more scalable and cost-effective alternative to traditional methods of spider silk production. This platform holds significant potential for advancing the development of biomaterials for several different worldwide applications.

POSTER

Speaker

M

Mariam Slewa

Lead Presenter | H - 13

Microbiome dynamics across food wastes and resulting black soldier fly larvae frass

1:00 PM – 2:55 PM

UNDERGRADUATE

Food waste represents a sustainability challenge, contributing to nutrient loss and greenhouse gas emission. Black soldier fly larvae (BSFL) offer a circular solution by converting food waste into animal feed and frass, a potential biofertilizer. This study evaluated how different food waste substrates shape bacterial abundance, diversity, and composition in both feedstocks and frass. Food waste from the SDSU Children's Center was sorted into chicken, fruit/vegetable, starch-rich, and mixed diets and fed to BSFL for 14 days. DNA was extracted from feedstocks and frass, and microbiome profiling was performed using 16S rRNA V3–V4 sequencing. Bacterial abundance varied among diets and shifted after digestion. Chicken waste contained the highest bacterial load, while fruit/vegetable waste had the lowest. In frass, starch-derived material showed the highest load, while mixed-waste frass had the lowest. Alpha diversity contrasted with abundance trends: fruit/vegetable and mixed waste were most diverse, while chicken waste was least diverse. In frass, fruit/vegetable-derived material retained high diversity, mixed-waste diversity declined, and chicken-derived frass increased, indicating diet-dependent microbial restructuring. Beta-diversity confirmed distinct communities across diets that persisted after digestion. Taxonomic patterns reflected substrate differences. Chicken waste and frass were dominated by lactic acid bacteria, while mixed and starch-rich waste contained more evenly distributed communities, and fruit waste harbored diverse plant-associated and fermentative taxa. Starch-derived frass, though Firmicutes-rich, also accumulated Proteobacteria. Mixed-waste frass was overwhelmingly dominated by Atopostipes suicloacalis and Vagococcus lutrae, indicating selective enrichment. Fruit/vegetable-derived frass exhibited the broadest taxonomic diversity across Firmicutes, Actinobacteria, Proteobacteria, and Bacteroidetes. Overall, food-waste composition shaped microbial communities before and after digestion, with implications for optimizing frass as a biofertilizer.

POSTER

Speaker

Mena Essa

Lead Presenter | H - 13

Loss of PIDDosome Signaling Causes Age-Dependent Cardiac Dysfunction

1:00 PM – 2:55 PM

UNDERGRADUATE

Cardiomyocyte ploidy increases after birth and plays a crucial role in cardiac growth and long-term function; however, its impact on the aging heart remains unclear. The PIDDosome is a signaling complex that regulates cardiomyocyte polyploidization. Echocardiography was performed to evaluate whether loss of PIDDosome signaling alters cardiac function across the lifespan in PIDD knockout(PIDD KO) mice. Using a Vevo 2100 high-frequency ultrasound system, hearts were imaged in the parasternal short-axis view, and M-mode recordings at the papillary muscle level were used to measure ejection fraction (EF) and fractional shortening (FS). In young mice (7–10 weeks), PIDD KO animals exhibited normal systolic function, with EF and FS values comparable to those of wild-type controls, as well as preserved systolic wall motion and consistent left ventricular dimensions, indicating intact early cardiac performance despite elevated cardiomyocyte ploidy. In contrast, aged PIDD KO mice (17–24 months) demonstrated significant systolic dysfunction, with reduced EF and FS and visibly diminished ventricular wall thickening compared to age-matched wild-type controls. Together, these findings suggest that while increased cardiomyocyte ploidy is well tolerated during early adulthood, prolonged loss of PIDDosome-mediated regulation leads to progressive, age-dependent contractile impairment, underscoring the importance of PIDDosome signaling in maintaining ventricular function with aging.

POSTER

Speaker

Rana Yousif

Lead Presenter | H - 13

Examining Drought Resistance in Gene Edited Soybeans Using Stable Carbon and Nitrogen Isotopes

1:00 PM – 2:55 PM

UNDERGRADUATE

The Salk Research Institute's Harnessing Plants Initiative aims to increase the carbon storage capacity and drought resistance of cash crop plants via gene-editing. The edits associated with preventing plant desiccation in drought conditions promote deeper root growth and increased suberin content, which enable plants to access lowered water tables and reduce moisture loss within the roots. Explorations into increasing the drought tolerance of cash crop plants offer a promising solution to current water availability crises experienced by the agricultural industry, creating a failsafe solution for increased evaporation and lowered precipitation rates.

Utilizing stable isotope analysis, this study examines shifts in the isotopic ratios of stable isotopes 13 C and 15 N in two edited soybean genotypes in comparison to a wild type control under well-watered and drought-stressed experimental conditions. We hypothesize that the edited soybean genotypes will exhibit C/N ratios similar to their well-watered counterparts, whereas the wild-type control line under drought stress will exhibit a higher C/N ratio than that of its well watered counterpart.

Results of this study are currently pending.

POSTER

Speaker

Ranya Tobin

Lead Presenter | H - 13

Socioeconomic patterns of high contamination risk crop elections in San Diego community gardens.

1:00 PM – 2:55 PM

UNDERGRADUATE

Community gardens in urban settings like the city of San Diego are often held back by the threat of heavy metal contamination uptake by their plants. Urban settings contain many different sources of heavy metals such as industrial and chemical facilities, vehicles and roads, and older buildings that use lead-based paint. This problem is especially prevalent in historically low-income and minority communities who have less resources to resolve these hazards. As a result, it highlights both a conflict of food sovereignty and environmental injustice among marginalized communities. An important factor in studying heavy metal contamination in urban community gardens are the species of plants actually grown there since different plants take up these compounds to different extents. The selection of crops grown in a given community garden is influenced by many different factors such as needs vs wants, culture, experience, and income. As a result the question I am trying to answer is which community gardens in San Diego tend to grow crops with higher contamination risk and what is their relationship to their socioeconomic conditions. I hypothesize that the lower the income of a community garden the more concern there will be for heavy metal contamination which will influence less risky crop selections. In this project, I will be looking at several different community gardens across the San Diego urban area and will use data on crop variety and heavy metal concentrations in soil coming from these locations. Additionally, I will be using online census tract data and data from other studies on heavy metal uptake by plants, physical contamination, water and air pollution. These data sets will be used to create a weighted indicator of contamination risk based on plant species and environmental contamination sources. Next I will map the geographical distribution of high-risk crop selection based on socioeconomic factors and conduct a statistical analysis of significance. This study may reinforce previous studies on environmental injustices in urban areas.

POSTER

Speaker

Y **Yohann Chheng**
Lead Presenter | H - 13

H - 2: Health Nutrition and Clinical Sciences (U) 3

1:00 PM – 3:00 PM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

A **Aalok Gokarn**
Lead Presenter | H - 2

A **Alissa Kashat**
Lead Presenter | H - 2

A **Amanda Williams**

A **Ashley Woo**
Lead Presenter | H - 2

C **Celine Thomassian**

D **Dishant Vandra**
Lead Presenter | H - 2

I **Isabel Gutierrez**
Lead Presenter | H - 2

S **Shawn Wong**
Lead Presenter | H - 2

Rehabilitative Adaptations to Unloading Knee Braces in Individuals With a Recent ACL Reconstruction

1:00 PM – 2:55 PM

UNDERGRADUATE

Anterior cruciate ligament (ACL) tears substantially reduce quality of life, impose significant financial burden, and long term delays in quadriceps muscle strength post ACL reconstruction. Although walking knee braces are not standard after ACL surgery, rehabilitative bracing improves walking and quadriceps strength in knee osteoarthritis. Therefore, we examined the biomechanical effects of a rehabilitative knee brace in individuals post ACL reconstruction, hypothesizing that brace wear would increase walking speed and step length, improve knee extension and heel contact at initial stance, and increase quadriceps activation.

Participants 6–12 weeks post ACL reconstruction who had resumed normal daily activities unaided were recruited (n = 4; 3 male, 1 female; age = 24.2 ± 3.4), while individuals with other conditions affecting gait were excluded.

Walking speed and step length were first measured during unbraced 40m overground walking (Off), after which participants were custom fit with a Guardian knee brace and completed two 5-minute practice sessions, with preferred gait assessed over the final 40m of each session (5 min, 10 min) and braced conditions (On).

Joint kinematics and muscle activity were measured during treadmill walking under three conditions: unbraced walking at unbraced preferred gait (Uupg), braced walking at unbraced preferred gait (Bupg), and braced walking at brace-preferred gait (Bbpg). Joint motions were captured using motion capture, and surface electromyography recorded activity of the three quadriceps muscles: vastus lateralis (VL), rectus femoris (RF), and vastus medialis (VM).

Overground walking speed, step length, and quadriceps activation showed non-significant increases with brace adaptation (all $p > 0.19$), while no significant changes were observed in initial stance knee or foot angles (both $p > 0.32$).

Although these effects did not reach statistical significance, the Guardian knee brace may improve gait mechanics and quadriceps activation following ACL reconstruction, warranting further investigation of short and long-term o

POSTER

Speaker

A

Aalok Gokarn

Lead Presenter | H - 2

Building Better Stories: Evaluating an Intensive Narrative Intervention for School-age Writers

1:00 PM – 2:55 PM

UNDERGRADUATE

Understanding how intensive narrative-language interventions support students with language-based disorders is critical, as spoken and written narrative skills are tightly linked to academic achievement and diagnostic outcomes (Spencer et al., 2013). Story Champs (Spencer & Peterson, 2012), a narrative-language intervention, has proven effective across a variety of settings, including Head Start classrooms and special education small groups (Spencer et al., 2013; Peterson et al., 2025). This study aimed to determine if Story Champs is an effective tool for written narrative language intervention in an intensive literacy summer camp for school-age children with language and literacy disorders.

Intervention was provided in small groups three times a week for six weeks to ten child participants between the ages of 7;0 and 9;3. In this single-case design intervention study, data were collected to demonstrate growth in the language complexity and narrative discourse skills of written composition. A total of 21 written narrative probes were administered to each participant: 3 at baseline and 18 during the intervention. The probes involved independently writing a response to a narrative language prompt. Written narratives were scored using a scoring system developed by the intervention's authors.

Scores for measured narrative language skills will be calculated and graphed at each time point for each participant, and further analyzed using visual analysis consistent with procedures for a single-case design. We hypothesize that results will demonstrate growth in written narrative language skills for school-age children with language and literacy disorders.

If our data yield positive outcomes, we recommend implementing this intervention in additional summer camps and school settings to improve narrative writing among school-age children with language and literacy disorders. This is beneficial as it increases children's opportunities to strengthen language and literacy skills, directly supporting later reading success and overall academic achievement.

POSTER

Speakers

A

Alissa Kashat

Lead Presenter | H - 2

P

Paige Wellman

Co-Presenter | H - 2

Gait, Kinematic & Muscle Adaptations to Unloading Knee Braces in Knee OA Patients

1:00 PM – 2:55 PM

UNDERGRADUATE

Knee osteoarthritis (OA) causes progressive cartilage loss, pain, and mobility limitations often worsened by muscle weakness and compensatory loading. Unloading knee braces aim to reduce joint stress and improve gait, yet the rehabilitative effects of specific designs remain unclear.

This study compared the short-term biomechanical and neuromuscular impacts of two unloading braces, the Guardian and the Ossur, on gait mechanics and quadriceps activation in individuals with unilateral medial knee OA. The Guardian brace is designed to promote terminal knee extension at heel strike, which we hypothesize will enhance step length, walking speed, and quadriceps muscle activation relative to the Ossur brace.

Participants with moderate to severe medial OA (Guardian n=8; Ossur n=12) were recruited based on imaging and clinical evaluation confirming diagnosis. Participants completed a baseline 40-m unbraced walk to establish preferred speed and step length, two 5-min practice sessions in the assigned brace with gait reassessed after each, and a final 40-m braced walk to capture the adapted preferred gait. Participants then completed treadmill trials to evaluate joint motions and quadriceps activity during unbraced preferred-speed walking, braced walking at the unbraced preferred speed, and braced walking at the brace-preferred speed.

Guardian users showed larger increases in walking speed and step length than Ossur users ($p<0.001$). Knee and foot angles at heel contact were not different between braces. VM and RF quadriceps activation increased more in the Guardian group ($p<0.008$) when comparing unbraced and braced-preferred speeds.

These results show that brace design can influence gait and neuromuscular responses. The Guardian brace demonstrated improved walking quality, supporting its potential as a more effective rehabilitative device for individuals with knee OA. Further work should examine long-term adaptations and functional outcomes.

POSTER

Speaker

A **Amanda Williams**

Effects of Fresh Mango Consumption on Postprandial GI Comfort, Anxiety, Glucose, and Skin Hydration

1:00 PM – 2:55 PM

UNDERGRADUATE

Mangoes (Mangifera indica L.) are rich in vitamins, dietary fiber, and bioactive compounds that have been associated with anti-inflammatory, antioxidants, and metabolic health benefits. While some studies have shown beneficial effects of mango-derived components on oxidative stress and blood glucose, research on the health effects of fresh mango consumption—particularly on postprandial gastrointestinal comfort, glucose responses, anxiety, or the topical application of mango on skin health—is limited. This study aimed to examine the effects of fresh mango consumption on postprandial gastrointestinal (GI) comfort, anxiety, and blood glucose levels, and skin hydration compared to an isocaloric control snack in healthy adults.

In a randomized, two-trial crossover design, 44 healthy adults (36 females, 8 males; mean age 23.0 ± 5.0 years; BMI 24.3 ± 4.6 kg/m2) consumed fresh mango (167 g, 100 kcal) and a low-fat cookie control (23 g, 100 kcal) in random order, with a 4-day washout. period. Participants fasted for 2 hours before each trial. Blood glucose was measured at baseline and at 30, 60, and 90 minutes post-consumption. Gastrointestinal comfort was assessed using questionnaires with a visual analog scale at the same time points. Anxiety was measured using the State-Trait Anxiety Inventory at baseline and 30 minutes post-consumption. Skin hydration was evaluated following a 1-minute topical application of mango or water (control).

Neither mango nor the low-fat cookie (LFC) caused gastrointestinal discomfort. Both LFC and mango consumption reduced anxiety levels ($P < 0.001$), with no significant difference between them. Mango consumption significantly lowered postprandial glucose compared with the isocaloric LFC control 9$P < 0.05$). Topical application of both mango and water increased skin hydration ($P < 0.001$), with a greater increase observed following mango application ($P = 0.003$).

These findings suggest that fresh mango consumption lowers postprandial glucose compared with an isocaloric control, and topical application of mango improves skin hydration.

POSTER

Speaker

A **Ashley Woo**

Lead Presenter | H - 2

The Influence of Dietary Non-Caloric Sweeteners on Traumatic Brain Injury in the Adult Drosophila.

1:00 PM – 2:55 PM

UNDERGRADUATE

Traumatic brain injury (TBI) is common especially in the context of contact athletics. In addition, many individuals regularly consume sports or energy drinks containing non-caloric sweeteners (NCS). Previous work has demonstrated the utility of Drosophila melanogaster as a model to study genetic, dietary, and environmental factors that influence aging and central nervous system (CNS) resilience following trauma. Prior studies have also shown that dietary interventions such as intermittent fasting can improve age-related neural decline and outcomes following TBI. However, concerns remain regarding the neurological impact of commonly consumed NCS, particularly sucralose and erythritol, which can be toxic to Drosophila at very high concentrations. In this study, we examined whether lower, more physiologically relevant concentrations of sucralose and erythritol influence aging, survival, and behavioral outcomes in adult male Drosophila, both under normal aging conditions and following mild repetitive traumatic brain injury (mTBI; 10 strikes). Flies were maintained on media containing 100 mM, 200 mM, 400 mM, or higher concentrations of either sweetener. After one week of dietary exposure, a subset of flies were exposed to mTBI and then returned to their respective diets. Longevity, mortality and motor function were assessed using longevity measures and geotaxis (climbing) assays. Low to moderate concentrations (100–200 mM) of both sucralose and erythritol had minimal negative effects and, unexpectedly, were associated with increased longevity in aging flies and improved survival following mTBI when compared to matched controls. Behavioral performance at these concentrations remained largely unchanged, even after injury. In contrast, higher concentrations (400 mM) resulted in significantly increased mortality and impaired geotaxis, with the most pronounced effects observed in TBI-exposed groups, indicating a clear dose-dependent response. Findings suggest that sucralose and erythritol exert concentration-dependent effects on survival and neural function in Drosophila.

POSTER

Speakers

C **Celine Thomassian**

S **Sydney Mudrak**

Co-Presenter | H - 2

Investigating β3-Dependent Stress Induced Regulation of Metabolism in Ovarian Cancer Stem-Like Cells

1:00 PM – 2:55 PM

UNDERGRADUATE

High-grade serous ovarian cancer (HGSOC) is the most lethal gynecologic malignancy, with chemoresistance driving poor clinical outcomes. Increasing evidence suggests that cancer stem-like cells (CSCs), a population with heightened stress tolerance and survival, drive tumor metastasis, chemoresistance, and tumor regrowth. Integrin β3, often forming the heterodimer αVβ3, has emerged as a key mediator of CSC survival across several cancer types. Stress-induced αVβ3 signaling activates diverse pathways, including survival signaling through AKT and ERK, angiogenesis via FAK and VEGF, and metabolic regulators such as AMPK, PGC1α, and mTOR, enabling a shift from glycolysis to oxidative phosphorylation (OXPHOS). In HGSOC cell lines, we found that αVβ3 surface expression significantly increases on CSCs in response to nutrient deprivation, isolation, anoikis, and cytotoxic stress compared to non-CSCs. In an intraperitoneal relapse mouse model of HGSOC, $\alpha V\beta 3^{+}$ cells comprised approximately 90% of recurrent tumors, compared to ~50% of vehicle-treated control tumors. $\alpha V\beta 3^{+}$ cells preferentially localized to lipid-rich tissues such as the mesentery, suggesting utilization of OXPHOS; however, the mechanisms underlying αVβ3-mediated stress tolerance and chemoresistance remain unclear. We hypothesize that stress-induced $\alpha V\beta 3^{+}$ signaling promotes activation of metabolic regulators, driving a shift toward OXPHOS. To test this, we generated and validated doxycycline-inducible shRNA β3 knockdown cell lines to assess how loss of β3 affects CSC survival and stress response programs. Future studies will include gene expression analysis of metabolic regulators, flow cytometry of αVβ3 expression, and mitochondrial dynamics. A 3D organoid model of HGSOC composed of fibroblast-derived extracellular matrix will be utilized to evaluate how β3 depletion impacts chemoresistance and tumor regrowth. Together, this work aims to define β3-mediated stress tolerance mechanisms and establish β3 as a therapeutic target to prevent ovarian cancer relapse.

POSTER

Speaker

D **Dishant Vandra**

Lead Presenter | H - 2

Using ADA Guidelines to audit and grade public restroom accessibility and usability

1:00 PM – 2:55 PM

UNDERGRADUATE

The plethora of barriers to restroom access in California include availability, public knowledge, lack of sanitary supplies, and the topic of this paper; accessibility. Systemic barriers of accessibility in California include non compliance issues, shut downs, short staff, neglect, and denial due to preservation of outdated facilities. Our infrastructure's failure to provide accessible restrooms in accordance with the Americans with Disabilities Act, ADA, posits that we have not securely accommodated accessibility needs of all individuals. The 2010 ADA Standards for Accessible Design Federal Minimums is a valid starting point for change. Over a decade later we now understand there is a grading need to quantify the legitimacy of a restroom's accessibility. This study seeks to successfully operate a repeatable grading system using the 2010 ADA standards along with inspection instruments such as measurements, exact tolerances, photographs, audits, to finalize a clear score. After development and validation of our assessment tool, a numerical grading system quantifies a letter grade like that of restaurant grade guidelines. It measures into three parts, those being passed 1.0 point as accessible/usable, partially 0.5 as a/u, and failing 0 to meet basic accessibility/usability with a total point scale of 100. Utilizing factor analysis our priorities would value at the following thresholds; Priority #1 would score 25% of the overall point system, priority #2 would hold 15% followed by priority #3 which holds a 35% weight, and priority #4 holds a 25% weight. Compliance or letter grade (A) would fall within a 90-100 score, partial compliance or letter grade (B) would follow a score of 70-89, and non compliant (C) would average <70 resulting in a critical need for improvement deeming it unusable or unsafe. Noteworthy, there will be data on restrooms that are not open at the time of visit which will result in a letter grade of (N/A). Inspections are finalized upon inter-rater agreement to quantify accessibility features of male, female, and gender neutral restrooms.

POSTER

Speakers

I **Isabel Gutierrez**
Lead Presenter | H - 2

Z **Zissi Winkler**
Co-Presenter | H - 2

Downhill running-induced muscle damage alters the power-velocity relationship at high speeds

1:00 PM – 2:55 PM

UNDERGRADUATE

INTRODUCTION Exercise-induced muscle damage (EIMD) triggers structural disruption, inflammation, and oxidative stress. Systemic inflammatory signals and oxidative stress may affect other organ systems. People with asthma may be especially vulnerable to these systemic effects due to underlying airway hyperreactivity and heightened sensitivity to inflammation. We aim to determine how EIMD influences (1) biomarkers of skeletal muscle damage, oxidative stress, and systemic inflammation, (2) the power–velocity relationship during maximal cycling, and (3) comprehensive pulmonary function in adults with and without asthma. In this abstract, we share preliminary data on the power-velocity relationship and subjective muscle soreness before and after EIMD.

METHODS Ten adults (6 men, 4 women, 23 4 yr, 171 cm 8 cm, 73.2 kg 10.1 kg) completed 30 min of downhill treadmill running at a −10% grade to induce EIMD. At baseline and 24 hr, volunteers finished short bouts (~5 s) of maximal isokinetic ergometry at 50 - 130 RPM to measure the power-velocity relationship (Excalibur PFM, Lode BV, Groningen, NL). We measured muscle soreness via a 100 mm visual analogue scale (VAS; baseline, 6hr, 24hr). After normality testing, we used repeated measures ANOVA (Velocity × Time) and paired t-tests to compare the power-velocity relationship, peak isokinetic power, and muscle soreness.

RESULTS The power-velocity relationship was distorted from baseline vs 24 hr, such that power was preferentially reduced at high contraction velocity following EIMD (Velocity × Time interaction; $F[4, 45] = 2.16$, $p = 0.088$). Peak isokinetic power was similar ($t[9] = 0.31$, $p = 0.76$) at baseline vs 24 hr (CI95Δ: −66, 86 W). VAS muscle soreness increased ($F[2, 27] = 33.0$, $p = 0.0001$) from baseline to 6 hr (CI95Δ: 9, 38 mm) and 24 hr (CI95Δ: 36, 65 mm).

CONCLUSIONS Thirty minutes of downhill running flattened the power-velocity relationship by 24 hr and heightened muscle soreness, but no change in peak isokinetic power. Power was preferentially reduced at high RPM, suggesting damage in Type 11a/x muscle fibres.

POSTER

Speakers

S **Shawn Wong**
Lead Presenter | H - 2

N **Nicholas Cayado**
Co-Presenter | H - 2

H - 3: Cancer Research Convergence (U) 1

1:00 PM – 3:00 PM | Location: Montezuma Hall

UNDERGRADUATE

CANCER POSTER SPECIAL SESSION

Speakers

A **Aileen Yasukochi**
Lead Presenter | H - 3

Alvaro Medina Perez
Lead Presenter | H - 3

Daniela Cazares
Lead Presenter | H - 3

Fabyana Zora

Isabella Alves
Lead Presenter | H - 3

Nia Palmer
Lead Presenter | H - 3

Shams Kala
San Diego State University

Ezinne Igwe
Lead Presenter | H - 3, CREATE scholars

Onvansertib-Mediated PLK1 Inhibition Reduces Viability and Growth in Neuroblastoma Cells

1:00 PM – 2:55 PM

UNDERGRADUATE

Background: Neuroblastoma is the most common extracranial solid tumor of childhood and a leading cause of pediatric cancer mortality. Despite advances in multimodal therapy, outcomes for patients with high-risk disease remain poor, highlighting the need for targeted therapeutic strategies. Polo-like kinase 1 (PLK1), a serine/threonine kinase critical for mitotic progression, is frequently overexpressed in neuroblastoma and promotes uncontrolled proliferation. Onvansertib, a highly selective PLK1 inhibitor, has emerged as a promising candidate due to its ability to disrupt mitosis and induce cell death.

Methods: We evaluated the effects of Onvansertib in multiple neuroblastoma cell lines using cell viability assays and molecular analyses. CCK-8 assays were performed following 24–72 hours of treatment to assess dose-dependent changes in proliferation. Western blot analyses were conducted to examine markers of PLK1 inhibition, DNA damage, apoptosis, and cell-cycle regulation.

Results: Onvansertib treatment produced a significant, dose-dependent reduction in cell viability across neuroblastoma cell lines. Molecular analyses revealed marked downregulation of PLK1 protein levels, confirming effective pathway inhibition. Increased phosphorylation of H2AX indicated activation of DNA damage responses, while elevated levels of cleaved PARP and cleaved caspase-3 demonstrated robust induction of apoptosis. Additionally, reduced phosphorylation of Cdc25c supported disruption of normal mitotic entry.

Conclusion: These findings demonstrate that Onvansertib impairs neuroblastoma cell survival through combined mitotic disruption, DNA damage accumulation, and apoptotic activation. Targeting PLK1 represents a compelling therapeutic strategy for high-risk neuroblastoma. This study supports further preclinical investigation of Onvansertib and provides a strong rationale for its advancement toward clinical evaluation.

CANCER POSTER SPECIAL SESSION

Speaker

Aileen Yasukochi
Lead Presenter | H - 3

Healthcare Access Disparities and Melanoma Incidence in SoCal: Imperial and San Diego County

1:00 PM – 2:55 PM

UNDERGRADUATE

Melanoma incidence variation across California counties is substantial, with these variations linked to ultraviolet-radiation exposure, demographic and socioeconomic factors, and healthcare access. Rural/agricultural regions similar to Imperial County may face persistent barriers to healthcare access, which can contribute to delayed diagnosis and potential underdiagnosis of melanoma when compared to other counties with more resources, like San Diego County. This study compares melanoma incidence rates and healthcare access indicators between Imperial and San Diego counties using 5-year estimates (2017-2021) to explore whether disparities in healthcare access are associated with differences in reported melanoma incidence patterns. An ecological county-level comparison was conducted using publicly available surveillance and population data, with age-adjusted rates and case counts obtained from the California Cancer Registry and State Cancer Profiles. Indicators used include percentage of uninsured, dermatologist density, and primary care provider density per 100,000 residents, which were collected from the American Community Survey and County Health Rankings. Descriptive comparisons were implemented across both counties during 2017-2021 with planned exploratory analyses examining associations between healthcare access measures and melanoma incidence rates. Imperial County data is expected to show patterns consistent with limited healthcare access, including higher numbers of uninsured residents and lower care provider density, coinciding with lower reported melanoma incidence rates when compared to San Diego County. These noticeable patterns could be associated with barriers in screening and diagnosis rather than differences in disease burden, highlighting the importance of healthcare accessibility when it comes to cancer surveillance. This underscores the potential for underdiagnosis in similar communities to Imperial County, rural and underserved populations. Ultimately, findings may contribute to emerging prevention, melanoma detection, and healthcare strategies.

CANCER POSTER SPECIAL SESSION

Speaker

Alvaro Medina Perez
Lead Presenter | H - 3

Successive Rounds of Chemotherapy Alters Notch Ligand and Receptor Expression in Ovarian Cancer

1:00 PM – 2:55 PM

UNDERGRADUATE

Ovarian cancer remains one of the most significant threats to women's health in the United States. Chemotherapy is the standard treatment, and although initially showing effectiveness, 80% of women experience relapse, with chemoresistant disease. Recurrent cases are often resistant to current therapies, highlighting the difficulty of treating ovarian cancer with high relapse rates.

Current research suggests that ovarian cancer stem-like cells (CSCs) are a subpopulation of cancer cells exhibiting stem-like qualities that contribute to tumor growth and play a role in chemotherapy resistance. The mechanism by which these CSCs can survive and regenerate tumors remains unclear. Recent studies implicate the Notch pathway in these mechanisms. Notch is a highly conserved pathway that plays a role in stem cell functions, including cell differentiation and self-renewal. Inappropriate Notch signaling has proven to be oncogenic in other cancers.

We hypothesize that after exposure to multiple rounds of chemotherapy, Notch signaling increases contributing to cancer relapse. To test this, we performed qPCR analysis on three ovarian cancer cell lines to assess changes in Notch receptor and ligand expression following multiple rounds of chemotherapy.

Our findings demonstrate Notch ligands increase expression after exposure to multiple rounds of chemotherapy. There is a significant increase in JAG1 expression after one and two rounds of chemotherapy, and there is a significant increase in DLL1 after two rounds in the OVCAR 8 and OV90 cell lines. Future directions include defining the mechanism by which these chemotherapy induced changes of Notch ligands and receptors alter CSC function and contribute to cancer relapse.

Since standard patient treatment involves multiple rounds of chemotherapy, defining when Notch signaling is active is clinically relevant for targeting critical treatment windows. Characterizing changes in Notch ligands and receptors across multiple rounds of chemotherapy may aid in identifying therapeutic targets to inhibit CSC-driven relapse.

CANCER POSTER SPECIAL SESSION

Speaker

Daniela Cazares

Lead Presenter | H - 3

Assessing Tumor Bed and Dosage During Accelerated Partial Breast Irradiation (APBI) Treatment

1:00 PM – 2:55 PM

UNDERGRADUATE

Background: Accelerated Partial Breast Irradiation (APBI) is a common treatment following lumpectomy for early-stage breast cancer, particularly in Stage 0–I patients. APBI targets the portion of the breast that previously harbored the tumor and is frequently delivered using intensity-modulated radiation therapy (IMRT) over five treatments. However, anatomical changes in the tumor bed or variations in patient positioning during this short course may affect dose distribution and increase exposure to organs at risk (OARs). This study evaluates the impact of daily setup variations on dosimetric parameters and their implications for treatment accuracy and normal tissue sparing in APBI.

Methods: Patients treated with APBI between June 2024 and June 2025 were identified. Each patient completed five treatment fractions. A planning computed tomography (CT) scan was acquired prior to treatment, on which the tumor bed, clinical target volume (CTV), and planning target volume (PTV) were delineated. Before each fraction, cone beam CT (CBCT) imaging was performed for alignment. To assess daily setup changes, tumor volumes were recontoured on each of the five CBCTs for all patients. Treatment plans were recalculated on the updated CBCTs to evaluate target coverage and OAR doses.

Results: Thirty-four patients treated with APBI were identified. Access to treatment planning software was obtained, and contouring training was completed. To date, tumor volumes have been contoured for 4 of the 34 patients. Upon completion of contouring for all patients, dosimetric parameters will be re-evaluated across all cases.

Conclusion: This ongoing study will provide insight into intra-treatment anatomical changes during APBI and may inform the need for adaptive strategies to maintain accurate tumor bed targeting while minimizing OAR exposure.

CANCER POSTER SPECIAL SESSION

Speaker

Ezinne Igwe

Lead Presenter | H - 3, CREATE scholars

RNA Editing ADAR1 Deaminase and APOBEC3 Responsive (READAR)

1:00 PM – 2:55 PM

UNDERGRADUATE

Background: RNA- and DNA-editing enzymes like ADAR1 and APOBEC3C have been recognized as key drivers of genomic instability and malignant transformation in hematologic diseases. In myeloproliferative neoplasms (MPNs), their expression and activity have been connected to leukemic progression and resistance to JAK inhibition. This study aims to evaluate whether differential expression of ADAR1 and APOBEC3C can serve as biomarkers of disease progression following patient responses to targeted therapies. Analyzing healthy controls is key to compare to the MPN patient samples. Methods: To construct this control dataset, we first process bone marrow samples from healthy donors using Ficoll density centrifugation to isolate mononuclear cells. From the mononuclear cells, we select for CD34+ hematopoietic stem and progenitor cells using immuno-magnetic beads. Then we extract total RNA using the RNeasy Micro Kit, followed by cDNA synthesis, and RT-qPCR analysis to measure mRNA expression levels of total ADAR1, ADAR1p150 isoform, ADAR1p110 isoform, and APOBEC3C. Results: These measurements form the baseline control for comparison to the patient samples where they are classified by MPN diagnosis, JAK2 variant allele frequency over time and clinical response to JAK inhibition. The control data will help determine whether changes in deaminase expression reflect true disease-driven dysregulation or fall within the range of healthy variability. Conclusions: By linking each technique to a larger diagnostic framework, this work ensures the scientific validity of using deaminase expression as clinical biomarkers. Establishing clean controls is key to identifying molecular thresholds for progression risk and treatment failure. Ultimately, our contributions aim to support real-time tracking of disease evolution and treatment response. This aligns with the broader goals of translational hematology and personalized cancer care. Acknowledgments: The research reported in this abstract was supported by the National Cancer Institute of the National Institutes of Health under award numbers:

CANCER POSTER SPECIAL SESSION

Speaker

Fabyana Zora

Exploring a Critical Regulatory Domain with Distinct Structural Features in Human IDH Enzymes

1:00 PM – 2:55 PM

UNDERGRADUATE

The family of isocitrate dehydrogenase (IDH) enzymes is responsible for catalyzing the NAD(P)-dependent oxidative decarboxylation of isocitrate into alpha-ketoglutarate (α-KG). Mutations in these paralogous enzymes, IDH1 IDH2, are found in a variety of cancers such as gliomas, secondary glioblastomas and acute myeloid leukemia. These mutations disrupt normal catalytic activity and instead undergo a neomorphic reaction that converts α-KG to the oncometabolite D-2-hydroxyglutarate (D2HG). Increased D2HG levels competitively inhibit α-KG-dependent dioxygenases, resulting in tumorigenesis. Following the discovery of this neomorphic activity and the role of D2HG in cancer progression, research has been conducted in order to inhibit mutant IDH1 and IDH2, highlighting the importance of regulatory structural elements involved in inhibitor binding. Despite the structural and sequence similarity between IDH1 and IDH2, the α-10 region is evolutionarily conserved between paralogs yet adopts distinct secondary structures that need further exploration. IDH1 forms a well-defined α-helix creating a more rigid binding pocket while IDH2 contains a more flexible loop-like conformation. Both differences therefore contribute to paralog-selective inhibitor binding. This project aims to elucidate the structural basis of α-10 region stabilization and how it contributes to paralog-selective inhibitor binding. To test this, a regulatory domain swap was performed between IDH1 and IDH2, placing the α-10 region of IDH2 into IDH1. The resulting constructs, R132H/V281L and R132H/V281L/S280I/Y285F, were successfully expressed and purified using E. coli and catalytic activity was evaluated using steady-state kinetics. Results indicate that the R132H/S280I mutation is catalytically inactive, potentially due to structural rearrangements that disrupt the α-10 region. Thus, this study provides insight into how structural differences in the α-10 region of IDH1/IDH2 regulate inhibitor binding and selectivity, providing more information on the design of paralog-selective IDH inhibitors.

CANCER POSTER SPECIAL SESSION

Speaker

Isabella Alves

Lead Presenter | H - 3

Mandated Pharmacy Benefit Insurance Coverage for Medically-Indicated Fertility Preservation

1:00 PM – 2:55 PM

UNDERGRADUATE

Objective: Fertility preservation (FP) before cancer treatment effectively reduces iatrogenic infertility. California's Senate Bill 600 (SB 600) mandates health insurance plans to cover fertility preservation services (medical and pharmacy) for patients at risk for iatrogenic infertility. Pharmacy benefits are a critical concern for female patients undergoing FP treatments such as oocyte or embryo freezing. This study aims to assess how SB 600 impacts eligibility for FP pharmacy benefits among female patients with cancer.

Methods: Retrospective cohort study of female patients ages 0-42, newly diagnosed with cancer at a single institution, and eligible for SB 600 from 10/2021 - 10/2024. Pharmacy benefit eligibility was determined using provider tools for each patient's insurance plan and by contacting member services to obtain pharmacy benefits for 10 common FP medications (e.g., injections, oral medications, gonadotropins).

Results: Of 62 patients eligible for pharmacy benefits across 9 health plans, 3 (5%) had automatic coverage and 34 (55%) required prior authorization. For the remainder of patients (40%), pharmacy benefits could not be determined. On average, determination of pharmacy benefits ranged between 2 to 50 minutes.

Conclusions: Our findings indicate that FP medications are not initially covered, as most insurance plans required prior authorization for each medication. Pharmacy benefit verification was time consuming due to some insurance plan representatives not being adequately informed about SB600. It is vital for health insurance plans to be knowledgeable about SB 600 and provide timely pharmacy benefit coverage for young cancer patients.

CANCER POSTER SPECIAL SESSION

Speaker

Nia Palmer
Lead Presenter | H - 3

Testing Endocrine Therapy on TS/A Cells to Utilize Syngeneic Models of ER+ Breast Cancer

1:00 PM – 2:55 PM

UNDERGRADUATE

Estrogen receptor (ER) positive breast cancer is one of the most common types of breast cancer subtypes diagnosed globally and has a known high rate of recurrence, leading to poor patient outcomes. ER is a key moderator of estrogen-dependent growth and proliferation in breast cancer cells. However, modeling ER+ breast cancer in mice remains a current limitation in the field, and it is unknown if ER+ mouse cell lines can recapitulate the biology of ER+ breast cancer in patients. Therefore, my work aims to investigate the effects of a clinically relevant selective estrogen receptor degrader, fulvestrant, in inhibiting cell growth in TS/A cells, a mouse mammary adenocarcinoma cell line. Through 2D experimental modalities and in vivo tumor modeling of TS/A cells, I report the preliminary efficacy of fulvestrant endocrine therapy on tumor cell growth and proliferation. The results presented here suggest that the TS/A cell line can be used in syngeneic models with estrogen supplementation. This would open a conversation for an in vivo syngeneic mouse model that is more representative of patient biology, allowing for investigation into how ER+ tumors interact with the immune system. This would bridge the gap between mouse and human testing as it allows researchers to understand if mouse ER-signaling responds to endocrine therapies the same way as human ER. Experimentation and testing with a model that is ER+ may better predict therapeutic outcomes to be experienced by ER+ breast cancer patients.

CANCER POSTER SPECIAL SESSION

Speaker

Shams Kala
San Diego State University

H - 4: Behavioral and Social Sciences (U) 5

1:00 PM – 3:00 PM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

Amaris Cruz
Lead Presenter | H - 4

D **Dakota Melton**

F **Fernanda Cuevas**
Lead Presenter | H - 4

H **Howard Frymire**
Lead Presenter | H - 4

V **Valerie Ibarra**

W **William Reyes**
Lead Presenter | H - 4

Z **Zoe Evangeline Idea**
Lead Presenter | H - 4

Interview With the Bilingual: Building a Corpus of the Spanish Language in the San Diego Area

1:00 PM – 2:55 PM

UNDERGRADUATE

The San Diego border region, an international border area, has a population that speaks a language other than English (40%), Spanish is the most spoken non-English language (22%) (City of San Diego Official Website). The current study focuses on the varieties of Spanish spoken in the San Diego border region. It aims to gather authentic, real-life language samples of the dialects spoken by the Spanish-English bilingual population in this region. This data will then be used to construct a digital corpus that will be available to the general public and added to the academic literature on Spanish dialects. Before recruiting participants, CITI training in Human Subjects Research was completed. Spanish-English bilingual participants N = 6; ages 18-65) were recruited from within the interviewers' social circles in the San Diego border region and include 3 males and 3 females. Participants were asked to take part in a sociolinguistic interview (Tagliamonte, 2006) in Spanish and English that included a variety of topics, both personal and general. Participants were informed they would be recorded. The recorded interview was first roughly transcribed using AI tools (SonixAI). Transcripts were then analyzed and errors were corrected. These six sociolinguistic interviews will be included in the publicly available, online digital corpus (forthcoming), permitting future study on the effects that factors like age, gender, and social location have on Spanish-English dialects. Future studies based on the San Diego Corpus could also focus on the differences between other Spanish speaking border regions, such as Arizona (Corpus del Español en el Sur de Arizona) and Texas (Corpus Bilingüe del Valle).

Citations

Population. Population | City of San Diego Official Website. (n.d.). https://www.sandiego.gov/economic-development/sandiego/population

SonixAI. (2025). https://sonix.ai/

Tagliamonte, S. A. (2006). The sociolinguistic interview. In Analysing Sociolinguistic Variation (pp. 37–49). Cambridge: Cambridge UP.

POSTER

Speaker

A **Amaris Cruz**
Lead Presenter | H - 4

Presentation Withdrawn

1:00 PM – 2:55 PM

UNDERGRADUATE

POSTER

Speaker

P **Presenter Withdrawn**

Speech Errors in Adults with Temporal Lobe Epilepsy

1:00 PM – 2:55 PM

UNDERGRADUATE

Approximately 50 million people worldwide are diagnosed with epilepsy. During a seizure, normal patterns of neural activity are disrupted by sudden bursts of electrical activity, which can lead to cognitive and linguistic difficulties. Adults with epilepsy often show impairments in word retrieval and selection, resulting in naming deficits and increased production of errors. Prior work has primarily focused on semantic-based errors commonly produced in adults with temporal lobe epilepsy (TLE); however much less is known about the broader distribution of the types of speech errors that occur and the context that can influence these error productions. In the current study, we use the picture-word interference (PWI) paradigm to answer two questions: (1) What is the overall pattern of speech errors produced in TLE and in which proportion each type is produced? and (2) Is the presence of speech errors modulated by distractor-picture name conditions? We hypothesize that TLE patients will show the semantic interference effect on accuracy overall (i.e., significantly more errors when distractor words are semantically related to the target than when they are unrelated). In addition to semantic errors, we hypothesize that other error categories (e.g., circumlocutions, perseverations, etc.) will be sensitive to semantic interference. Behavioral naming data was collected from 15 adults with TLE (8 females; mean age = 31.47 years, SD = 9.17) undergoing intracranial EEG monitoring for refractory epilepsy at UCSD Medical Center. Participants completed a PWI task where distractor words varied in semantic relatedness to the picture name (target). Speech errors were categorized across 11 error types. Descriptively, the most frequent errors were semantic errors (25%), hesitations (22%), omissions (23%), and misses (23%). Additional analysis will further examine how the various speech error categories are influenced by semantic interference. Overall, this study will provide nuanced information on the various speech errors produced in individuals with TLE beyond semantic based errors.

POSTER

Speaker

Dakota Melton

The association between antipsychotic use, auditory hallucinations, and family history on cognitive

1:00 PM – 2:55 PM

UNDERGRADUATE

Background: Symptoms of psychosis (e.g., auditory hallucinations) predict poorer cognitive outcomes, including in later life. However, antipsychotic medication use may also be associated with worse cognition. Family history of dementia increases risk of poor cognitive outcomes, yet it is unclear if this exacerbates the connections of auditory hallucinations and antipsychotic medication to worse cognition.

Objective: Examine associations between auditory hallucinations and reported antipsychotic use on cognitive performance among Hispanic/Latino adults across a wide-range of cognitive status diagnoses (i.e., cognitively healthy to dementia). Additionally, we will investigate if these associations differ by family history of dementia status.

Methods: Participants included 3,676 Hispanic/Latino adults, ages 18-106 years (mean=70 years) from the National Alzheimer's Coordinating Center dataset (41 sites; 2005-2022). The outcomes of interest were cognitive performance on semantic fluency (Animals), Digit Symbol Substitution, Trails Making Test Parts A and B, Craft Story 21 immediate and delayed recall, Digit Span Forward and Backward. Exposures included reported use of antipsychotic medication (yes/no) and auditory hallucinations (present/absent). The moderator was self-reported family history of at least one parent, sibling, or child with dementia. Covariates included education, age, sex, language of test administration, and cognitive status. We ran linear regression models to test for associations between antipsychotic medication use and auditory hallucination symptoms with cognitive performance and additional models testing the interaction between each exposure and family history of dementia on cognition. Robust errors were reported when White’s test for heterogeneity was significant.

Results: Antipsychotic medication use and presence of auditory hallucinations were each significantly associated with worse cognitive performance on semantic fluency, Digit Symbol Substitution, Trails Parts A and B, and Digit Span Forward and Backwards in fully adjusted models (p

POSTER

Speakers

Fernanda Cuevas

Lead Presenter | H - 4

Marco Santoscoy

Co-Presenter | H - 4

Sociodemographic Characteristics and Food Insecurity

1:00 PM – 2:55 PM

UNDERGRADUATE

Food insecurity is a condition in which individuals or families have limited access to nutritious food necessary for a healthy lifestyle. College students have a higher prevalence of food insecurity compared to the general population. Previous studies have found that 14-59% of college students are food insecure, compared to only 12.8% in the general population. With increasing cost of living in San Diego and rising tuition, it is important to examine food insecurity among SDSU students. This research study had two main objectives: 1) explore associations between sociodemographic factors and food insecurity and 2) describe use of on-campus resources and CalFresh awareness among SDSU students. This cross-sectional study among SDSU students (N=917) examined data collected from an undergraduate research methods course in Fall 2025 using convenience sampling. An online survey via QR code focused on 3 areas: 1) sociodemographic characteristics, 2) use and awareness of on-campus resources and CalFresh; and 3) food insecurity status measured by the US Department of Agriculture's Food Security Scale. Statistical analyses will be conducted using SPSS v.31. Most participating students were female (n=603; 65.7%), Hispanic/Latinx (n=364; 40%), of junior status (n=310; 33.8%), first-generation (n=467; 50.9%), employed (n=576; 59,3%), and lived off-campus (n=769; 94%). Out of 917, 41.9% of students (n=384)

reported being food insecure. Only 11.8% (n=108) were currently enrolled in CalFresh, while 25.5% (n=234) were unsure about the details of the CalFresh program and were possibly interested. Additionally, about 11% (n=100) have never heard of CalFresh. Bivariate analyses will be conducted to examine potential statistically significant correlations between sociodemographic factors and food security status. Findings can

provide valuable insight about potential factors that may exacerbate students' risk for food insecurity and highlight future areas for more targeted efforts to address this issue and increase awareness about available resources.

POSTER

Speaker

H

Howard Frymire

Lead Presenter | H - 4

How do Spanish-English bilinguals resolve between- and within-language interference when they speak?

1:00 PM – 2:55 PM

UNDERGRADUATE

Bilinguals activate both languages simultaneously during word retrieval. This can result in cross-linguistic competition. Previous studies have explored conditions that elicit such competition and how bilinguals resolve such interference. For example, we previously examined cross-linguistic interference as elicited by false cognates, words that are similar in form but dissimilar in meaning. We found that the presence of false cognates elicits cross-linguistic interference. Here, we aim to elicit not only the previously observed cross-linguistic interference effect, but also examine within-language phonologically mediated semantic interference (e.g., mantel is phonologically related to manteca, which is semantically related to aceite). Examining both within- and between-language interference in the same group of bilinguals allows us to test whether the same control mechanisms are used to resolve lexical conflict within and between languages. In the current study, Spanish-English bilingual young adults participate in an auditory picture-word interference task. Participants were asked to name images in Spanish (e.g. "Aceite"- oil) while ignoring auditorily presented Spanish distractor words, which were presented across one of four conditions: false cognate (e.g., distractor: "Ola"- wave), phonologically mediated (e.g., distractor: "Mantel"- tablecloth), unrelated (e.g., distractor: "Candado"- lock), and identity (e.g., distractor: "Aceite"). While data collection is ongoing (currently n = 10), we expect to observe longer naming latencies and reduced accuracy in false cognate and phonologically mediated conditions relative to unrelated trials, reflecting cross-linguistic and within-language competition. If bilinguals use the same control mechanisms to resolve interference within and across languages, these two effects will correlate with one another. These findings will contribute to our understanding of how bilinguals flexibly manage two active languages and resolve both cross-linguistic and within-language interference.

POSTER

Speaker

V

Valerie Ibarra

Effects of Word Class and Difficulty on the Spanish Web-Based Computerized Comprehension Task

1:00 PM – 2:55 PM

UNDERGRADUATE

Language pathways emerge early (Romeo et al., 2018), are foundational to emerging literacy and numeracy (Schmitt, Simpson, and Friend, 2011; Chen et al., 2024), and offer insight on conceptual development and risk (Hadley et al., 2015; McGregor et al., 2025). Expanding assessment in Spanish is crucial to the inclusiveness of developmental psycholinguistics.

The Computerized Comprehension Task (CCT; Friend et al., 2012) is a psychometrically sound measure extended to multiple languages (e.g., Gillen et al., 2021; Lo et al., 2021; Rosemberg & Alam, 2021). The Spanish Web-Based CCT builds on this, estimates vocabulary from 18 to 60 months of age and fills an important gap in Spanish. It possesses good convergent validity (?(18)=.679, p < .001) and excellent internal consistency (?=.987) with 94 items in 4 bins of increasing difficulty with age.

We report accuracy as a function of word class and difficulty. Before age two, verbs constitute a very small proportion of early words in Spanish (Friend & Keplinger, 2008; Jackson-Maldonado et al., 2003). By age two, children begin using verbs in sentences and, by age three, are sensitive to verb typology (Hohenstein et al., 2004; Maguire et al., 2009).

Twenty-nine participants (x age=34 mos, 19F, 25 Spanish-English bilingual, 4 Spanish monolingual) completed the CCT. There were similar proportions correct for nouns and verbs, followed by adjectives (Nouns=.33, Verbs=.33, Adjectives=.13) reflecting age effects relative to prior work. Proportions correct by word class were higher for easier words (Nouns=.62, Verbs=.61, Adjectives=.26,). Proportion correct was not significantly different for nouns versus verbs (p=.33) but was for verbs versus adjectives (t(28)=7.14, p <.001). Age was correlated at r(28)=.475, p=.009 with nouns and verbs but uncorrelated with adjectives. Finally, proportion correct was uncorrelated with language exposure. We will regress word-class proportions onto age and difficulty in a sample of 50 children and provide an estimate of test-retest reliability for the Spanish Web-CCT.

POSTER

Speaker

W **William Reyes**
Lead Presenter | H - 4

How Lexical Properties Shape Phonological Conflict: Evidence From a Tongue Twister Paradigm

1:00 PM – 2:55 PM

UNDERGRADUATE

Speech production involves interactions between multiple representational layers, and several factors can shape the selection process. This study questions whether lexical-level factors, i.e. phonological neighborhood density (PND) and word frequency (WF), modulate the behavioral effects of similarity-induced phonological conflict in a tongue twister paradigm. PND refers to how many different words can be created by changing one segment of the reference word. Words with dense phonological neighborhoods (i.e., high PND) have more phonologically similar neighbors than words with sparse phonological neighborhoods (i.e. low PND), leading to stronger activation and increased competition during lexical retrieval for words. Higher frequency words are associated with easier access to the intended lexical representation. Phonological similarity refers to the degree sounds in an utterance overlap in features such as place, manner, and voicing. In tongue twisters, phonological similarity can be manipulated to induce conflict. In this study, tongue twisters were qualified as Similar if phonological onsets between words had at least two common features (ex. pub bust bun puff), Dissimilar if phonological onsets had only one common phonological feature (ex. zing bib bit zip). The Similar condition typically induces worse performance because greater phonological similarity increases conflict during language production. Forty-seven participants produced thirty-two tongue twisters consecutively across similarity conditions and repeated cycles. We expect that PND and WF will not only influence production independently but also interact with similarity, as reflected in reaction time, speech errors, and production accuracy. For the field of language production, this study will help reveal if phonological errors can be influenced by lexical variables, and in turn help refine language production models.

POSTER

Speakers

Z **Zoe Evangeline Idea**
Lead Presenter | H - 4

N **Natalie Rittman**
Lead Presenter | F - 12

H - 5: Behavioral and Social Sciences (U) 6

1:00 PM – 3:00 PM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

A **Amanda Thibodeau**
Lead Presenter | H - 5

A **Angelina Lee**
Lead Presenter | H - 5

A **Arianna Dowlatshahi**
Lead Presenter | H - 5

A **Ashlyn Teran**
Lead Presenter | H - 5

F **Fernanda Guereca Ruiz**
Lead Presenter | H - 5

G **Grace Mantek**
Lead Presenter | H - 5

S **Steven Yu**
Lead Presenter | H - 5

T **Tiara Simonton**
Lead Presenter | H - 5

Associations between sexual violence and suicidality among sexual minority and heterosexual youth

1:00 PM – 2:55 PM

UNDERGRADUATE

Introduction

Compared to heterosexual youth, sexual minority (SM) youth (e.g., gay, lesbian, bisexual) are at higher risk for sexual violence victimization (SVV), which was further elevated during the COVID-19 pandemic lockdown. A study by Allen et al. using 2021 Youth Risk Behavior Survey (YRBS) data found that SM status may moderate the association between SVV and both depressive symptoms and suicidality. Given that parental surveillance and socialization may have differed during the COVID-19 lockdown, this study aimed to examine whether these results would generalize to the post-lockdown, endemic COVID-19 period.

Methods

Utilizing the 2023 YRBS data of United States high school students (N = 12,842), binary and ordinal logistic regression models were used to assess the associations between SVV and depressive symptoms and suicidality while controlling gender, age, and grade level in school. The PROCESS macro by Hayes and likelihood ratio tests were used to assess whether SM status moderated these relationships.

Results

SVV and SM status were associated with increased odds of being sad or hopeless, considering suicide, making a suicide plan, attempting suicide, and injurious suicide attempts (all, $p < .001$). SM status significantly moderated the relationship between SVV and considering suicide, making a suicide plan, attempting suicide, and injurious suicide attempts (all, $p < .01$), such that these associations were stronger for heterosexual youth compared to SM youth. SM status was not found to significantly moderate the relationship between SVV and feeling sad or hopeless ($p = .24$).

Conclusion

The 2021 study did not find SM status significantly moderated the associations between SVV and suicide attempts or injurious suicide attempts, but the current study did. SM youth are at a general higher risk of suicidality, whereas the associations of SVV with depressive symptoms and suicidality are stronger for heterosexual youth. These findings underscore the importance of re-evaluating pandemic-era conclusions about adolescent suicide risk using contemporary data.

POSTER

Speakers

A **Amanda Thibodeau**
Lead Presenter | H - 5

N **Nathalia Oliveira Wittlin**
Co-Presenter | H - 5

Cultural Influences on Word Production in Mandarin-English Bilingual Elders

1:00 PM – 2:55 PM

UNDERGRADUATE

Bilingual individuals draw on conceptual and culturally specific knowledge from each of the languages they speak (Dong et al., 2005). Verbal fluency tasks are commonly used to assess higher-level thinking, language impairment, and bilingual language abilities (e.g., Blumenfeld et al., 2016; Gollan et al., 2002; Kertesz, 1982). In these tasks, participants name as many items as possible from a semantic category within one minute. We hypothesize that freely produced responses in verbal fluency tasks reflect cultural background, language proficiency, and other individual linguistic factors.

Fifteen healthy Mandarin–English bilingual adults (mean age = 77.1) completed verbal fluency tasks in both languages across three categories: animals, grocery items, and modes of transportation. Participants were given one minute per category in each language. Responses across Mandarin and English were analyzed to examine patterns related to culture, language, proficiency, and linguistic factors. Results are presented using word clouds or similar visualizations to illustrate the frequency and nature of words produced across languages and categories.

Preliminary analyses reveal a greater number and higher specificity of responses in Mandarin than in English, consistent with participants' higher Mandarin proficiency. Some responses were unique to one language, while others appeared in both as translation equivalents. Cultural-linguistic differences were observed across languages, reflecting category-specific cultural contexts. For example, in Mandarin, some participants produced Chinese Zodiac animals during the animal fluency task, a pattern not observed in their English responses. Data analysis is ongoing to identify additional cultural-linguistic patterns.

These findings contribute to the understanding of semantic organizations in Mandarin–English bilinguals, and have implications for patient-centered speech-language services. Words naturally produced by healthy bilingual speakers may serve as valuable clinical resources for intervention and assessment with bilingual clients.

POSTER

Speakers

A **Angelina Lee**
Lead Presenter | H - 5

T **Tobias Kuhlmeier**
Co-Presenter | H - 5

Clearing the Air: Developing an Adaptive Intervention To Decrease Smoking in LGBTQ+ Adolescents

1:00 PM – 2:55 PM

UNDERGRADUATE

Tobacco and nicotine intervention research among adolescents remains limited, particularly for LGBTQ youth who face elevated smoking risk.

This study aimed to develop a Just-In-Time Adaptive Intervention (JITAI) to reduce smoking behaviors among LGBTQ adolescents via a mobile application, dubbed Puff Break. JITAIs aim to provide individuals with individually tailored support for health promotion at the right moment by adapting to changes in an individual's inner state or context (Nahum Shani et al., 2017). This research builds on a 14-day ecological momentary assessment study in which 50 LGBTQ adolescents aged 15-19 completed five scheduled, mobile phone-based surveys assessing smoking behaviors, experiences of stress, craving, and smoking-related socialization.

At the end of the EMA study, participants underwent exit interviews to contextualize their smoking data and recommendations for the JITAI. Utilizing the JITAI framework outlined by Nahum-Shani et al. (2017), we used a qualitative template analysis approach (Crabtree & Miller, 1992) to code interview data for relevant features to guide the design of Puff Break. Coding is currently underway; preliminary analyses identified several states of vulnerability that trigger smoking cravings (e.g., stress, social cues, oral fixation). Participants recommended intervention options to disrupt smoking, such as push notifications, motivational messages, encouragement to engage in hobbies, and a daily check-in system (AI coach). Proximal outcomes–short-term objectives that ultimately support the long-term outcome (i.e., smoking cessation)–were identified, such as increasing intentions to quit, access to mental health resources, and other health promoting behaviors (e.g., exercise).

Final analyses will refine Puff Break's JITAI by prioritizing participant-informed EBPs. Digital interventions like Puff Break may support early cessation and reduce tobacco-related health disparities among LGBTQ youth with potential for broad implementation.

POSTER

Speaker

A **Arianna Dowlatshahi**
Lead Presenter | H - 5

Language does not modify the relationships between traumatic brain injury history and cognition amon

1:00 PM – 2:55 PM

UNDERGRADUATE

Objective/Background: Among Latino adults, those who primarily speak Spanish may face disparities in health outcomes, including those related to traumatic brain injury (TBI) and cognition, than English speakers. In this study, we hypothesized TBI would be associated with lower cognitive performance, and this relationship would be stronger for those whose primary language is Spanish.

Methods: Participants included Latino adults from the National Alzheimer's Coordinating Center data set (N = 4,600, ages = 18–108; 45 sites). The dependent variables were cognitive performance on semantic fluency (Animals), verbal memory (Craft Story Delayed Recall), processing speed and executive functioning (Trails Making Test A and B and Digit Symbol Substitution), and attention/working memory (Digit Span Forward and Backward). The independent variable was self-reported history of TBI (present/absent). The moderator was self-reported primary language (English or Spanish). Covariates included age, sex, education, and Latino heritage. Using general linear models, we tested the relationships between TBI and cognition and moderation of these associations by primary language. Robust standard errors were reported when White's test indicated heteroskedasticity.

Results: TBI history was linked to poorer performance on memory (Beta= -0.435; $p = .001$) and processing speed (Trail A; Beta= 1.12; $p < 0.05$). The effect sizes were small (partial $\eta^2 \geq 0.001$). There were no significant TBI × language interactions.

Conclusion: Contrary to our hypothesis, our findings suggest that language did not change the link between those with TBI history and cognition. Rather, TBI history was specifically associated with worse performance on a memory and a processing speed test in a similar pattern across language groups. Future research should account for 1) other sociocultural factors in the examination of the relationships between TBI and cognitive outcomes and 2) whether Latino adults with a history of TBI are at higher risk for dementia, especially Alzheimer's disease.

POSTER

Speaker

A

Ashlyn Teran

Lead Presenter | H - 5

Effects of Prenatal Nicotine E-Cigarette Exposure on Cytokines in the Developing Lung

1:00 PM – 2:55 PM

UNDERGRADUATE

Smoking during pregnancy is known to be harmful to the developing fetus. There has been a wide effort to disseminate information on the dangers of smoking during pregnancy, as it can adversely affect lung, brain, and behavioral development. Fortunately, the number of women smoking combustible cigarettes during pregnancy has decreased over recent years. However, there has been a concomitant increase in the use of new nicotine products, like e-cigarettes and other electronic nicotine delivery systems, which have gained popularity in the market. E-cigarettes are advertised and perceived as posing fewer risks compared to combustible cigarettes. However, little is known of the effects of e-cigarette vaping on the developing fetus, raising concerns. To address this question, we used an animal model of prenatal e-cigarette exposure to examine the consequences on lung development. Specifically, we examined whether prenatal e-cigarette exposure modifies inflammatory cytokines in the offspring's lung tissue. From gestational days 5 to 20, pregnant Sprague-Dawley rats were exposed to e-cigarette vapor containing 36 mg/mL nicotine, delivered in 6-second puffs every 5 minutes for 30 minutes/day. On postnatal day one, lung tissue was collected from the offspring, and expression of two cytokines was measured using ELISA: TNF-α and IL-6. Both TNF-α and IL-6 were significantly reduced in lung tissue of offspring exposed to e-cigarettes prenatally, compared to controls. Importantly, TNF-α and IL-6 may contribute to inflammatory responses but can also influence cell survival and differentiation during development. Results indicated that prenatal e-cigarette exposure may alter cytokine expression in the lung, although e-cigarette exposure led to premature birth, making interpretations more challenging. Regardless, the present study illustrates that prenatal e-cigarettes exposure impacts the developing lung. Elucidation of the risks associated with prenatal e-cigarette exposure on the health of the developing fetus is critical for promoting healthy pregnancies.

POSTER

Speaker

F

Fernanda Guereca Ruiz

Lead Presenter | H - 5

Evaluating Concussion Protocols and Awareness in Collegiate Field Hockey and Lacrosse Athletes

1:00 PM – 2:55 PM

UNDERGRADUATE

Sports-related concussions (SRCs) are a significant concern in collegiate athletics, yet the awareness, reporting, and management of concussions among field hockey and lacrosse athletes remain understudied compared to higher-profile sports. This study aims to evaluate collegiate field hockey and lacrosse athletes' knowledge of concussion symptoms, experiences with concussion treatment and management, and perceptions of sideline protocols following head impacts. The central hypothesis is that athletes will demonstrate moderate awareness of common concussion symptoms but may be less familiar with subtle indicators (e.g., sleep disturbances, irritability), and that attitudes toward concussion management will be mixed, with concerns about missed playing time contributing to underreporting. This study will employ a mixed-methods approach, combining a structured literature review with a cross-sectional survey distributed to collegiate field hockey and lacrosse athletes aged 18–25 from both community colleges and four-year universities. Survey items will assess demographic information, concussion knowledge, attitudes toward reporting and return-to-play, and perceptions of coaching and athletic trainer responses. Exploratory correlational analyses will assess relationships between prior concussion history and attitudes toward reporting or safety behaviors. These findings will inform recommendations for improved educational initiatives, prevention strategies, and policy changes to enhance athlete safety in underrepresented sports.

POSTER

Speaker

G

Grace Mantek

Lead Presenter | H - 5

Early Vocabulary Size, Spatial and Number Vocabulary, and Number Word Comprehension

1:00 PM – 2:55 PM

UNDERGRADUATE

Does emerging numeracy depend on innate or acquired knowledge? The Analog Magnitude System (AMS) is related to approximate calculations (Gunderson & Hildebrand, 2021) and number mapping (Wagner & Johnson, 2011). Mathematical language is related to classifying numbers (Georges et al., 2023). Similarly, parent math talk is related to child math skill (Silver et al., 2024) and parent spatial vocabulary is related to spatial skill (Pruden & Levine, 2017).

This study, part of the Many Numbers project (NSF # 2201968), explores relations between vocabulary size, number and spatial word vocabulary (NSWVT), and number word comprehension (Give-N). Pilot participants are 10 children (Mage=45.50 mos., range=25 to 61 mos.; 6F).

An extension of the Computerized Comprehension Task (CCT; Friend & Keplinger, 2003) and its Spanish adaptation (Friend & Zesiger, 2011) estimated vocabulary size with high internal consistency and reliability (Friend et al., 2012). On the NSWVT, children identified numeracy or spatial items ordered pseudo-randomly as both target and distractor across 34 forced-choice trials. On a modified Give-N task (Wynn, 1990), children chose between 1 and 10 objects requested pseudo-randomly over 24 trials.

Using a median split on Give-N (M=12.8, SD=10.28), high scores on the NSWVT (M =32, SD=1.22) were related to high scores on Give-N and low scores (M=20, SD=6.60) were related to low scores. Likewise, larger vocabularies on the CCT (M=81.20, SD= 8.23) were related to higher scores on Give-N whereas smaller vocabularies (M=22.00, SD=13.45) were related to lower scores. Both vocabulary size and specific number and spatial word vocabulary were related to number word comprehension. This pattern may reflect number and spatial word vocabulary contained within overall vocabulary. We will regress Give-N onto the NSWVT and the CCT to determine whether vocabulary size accounts for unique variance beyond number and spatial words. We anticipate presenting findings on 40 participants with power=.80 to detect a medium effect at α=.05 (G*Power; Erdfelder et al., 2007).

POSTER

Speakers

S

Steven Yu

Lead Presenter | H - 5

D

Diana Martinez

Co-Presenter | H - 5

The association between hypercholesterolemia with executive functioning and working memory among His

1:00 PM – 2:55 PM

UNDERGRADUATE

Background: In the U.S., Latino adults are expected to experience the highest increase in dementia cases by 2060 relative to other ethnic/racial groups. They also face a disproportionate burden of untreated cardiometabolic conditions, including high cholesterol. Studies have implicated cholesterol in cognitive aging, but these relationships are poorly understood among Latino adults.

Methods: The study included 4,054 Latino adults, ages 18-106 years (mean=70 years) from the National Alzheimer's Coordinating Center (41 sites; 2005-2022). The independent variable was self-reported hypercholesterolemia (present/history of versus absent). The dependent variable was performance on cognitive tests, including Digit Span Forward and Backward, Digit Symbol Substitution, Trails A and B, Animals, Craft Immediate and Delayed Recall. Covariates included demographic and cardiometabolic factors (hypertension, stroke/transient ischemic attack, diabetes, and body mass index). Linear regression models were performed to examine the associations between high cholesterol and each cognitive outcome.

Results: In fully adjusted models, individuals with hypercholesterolemia scored higher on executive functioning and attention tests relative to those without hypercholesterolemia (Digit Span Forward: b=3.0, t=2.6, p=0.01; Digit Span Backward: b=3.2, t=2.7, p<0.01; Digit Symbol Substitution: b=2.9, t=2.2, p=0.03). However, hypercholesterolemia was associated with slower processing speed compared to individuals without hypercholesterolemia (Trail A: b=26.9, t=2.9, p=0.04). No other significant associations between hypercholesterolemia and cognition were detected in fully-adjusted models.

Discussion: Hypercholesterolemia was associated with varied performance on cognitive tests independent of other cardiometabolic factors. Participants with hypercholesterolemia appeared to have slower processing speed yet did better on attention and executive functioning tests. Future research should examine if high cholesterol translates to increased risk for cognitive impairment among Latino adults.

POSTER

Speaker

T **Tiara Simonton**
Lead Presenter | H - 5

H - 6: Cancer Research Convergence (U/G) 1

1:00 PM – 3:00 PM | Location: Montezuma Hall

UNDERGRADUATE/GRADUATE

CANCER POSTER SPECIAL SESSION

Speakers

A **Aaron Le**
Lead Presenter | H - 6

H **Hannah Broyles**
Lead Presenter | H - 6

J **Josselyn Jacobo**
Lead Presenter | H - 6

K **Katelyn Yunker**
Lead Presenter | H - 6

G **Garret Thomason**
Lead Presenter | H - 6

R **Reagan Yee**
Co-Presenter | H - 6

M **Megan Keene**
Lead Presenter | H - 6

N **Nino Mamasakhlisi**
Lead Presenter | H - 6

P **Penelope Romero Pimentel**
Lead Presenter | H - 6

Kinetic Characterization of Cancer-Associated Mutants of Isocitrate dehydrogenase 2

1:00 PM – 2:55 PM

MASTER'S

Isocitrate dehydrogenase 2 (IDH2) is a $NADP^+$-dependent enzyme that catalyzes the oxidative decarboxylation of isocitrate (ICT) to α-ketoglutarate (αKG). As a member of the isocitrate dehydrogenase (IDH) enzyme family, it plays a key role in cellular metabolic processes such as biosynthesis, epigenetic regulation, and redox homeostasis1. Mutations in IDH1 and IDH2 are drivers of many types of cancer, including 80% of low-grade gliomas and secondary glioblastomas . Mutations in IDH1/2 gain a neomorphic activity where it converts α-ketoglutarate (αKG) to D-2-hydroxyglutarate (D2HG) This can help drive tumorigenesis as high levels of D2HG competitively inhibits α-KG-dependent enzymes, leading to abnormal histone and DNA methylation patterns3. The most common cancer-driving mutations in IDH2 are R140Q, R172K, which are found in around 12% of patients with acute myeloid leukemia 4. Therefore, these mutation points in IDH2 are therapeutic targets for treatment in cancer patients. Yet, mechanistic studies of mutations in IDH2 are limited compared to IDH1, most likely due to the challenging expression and purification of IDH2. Here, we show an optimized approach to express IDH2 in Escherichia coli (E. coli). We successfully expressed and purified high levels of IDH2, allowing us to characterize the kinetic rates of common IDH2 mutants found in cancer patients (e.g. R140Q, R172K). Therefore, we can see the Michaelis-Menten rate of enzyme activity compared with the wild-type. We monitor the efficiency of IDH2 wild-type certain condition buffers, we also monitor the efficiency of mutant IDH2 - kinetic rate of mutants R140Q, R140L, R172K, R172S IDH2. This approach will help our understanding of IDH2 enzymatic activity and its role in oncogenesis, providing valuable insights for the development of strategies targeting IDH2 mutations and the design of inhibitors.

CANCER POSTER SPECIAL SESSION

Speaker

A

Aaron Le

Lead Presenter | H - 6

Identifying Sensitivity and Resistance Pathways to TEAD Inhibition in Head and Neck Cancer

1:00 PM – 2:55 PM

UNDERGRADUATE

Head and neck cancer (HNC), which affects primarily the oral cavity and tongue, is an aggressive malignancy resulting in reduced quality of life and poor survival. With immunotherapies as an emerging effective treatment option, most HNC patients undergo surgery, radiation, and/or chemotherapy.

Despite these approaches, there has been limited improvement in HNC patient survival rates over the past few decades.

Genetic mutations in components of the Hippo pathway and enhanced YAP/TAZ–TEAD transcriptional activity are identified as novel cancer driving mechanisms in Head and Neck cancer. This pathway culminates with the inhibition of YAP, which is associated with the transcription factor, TEAD, to induce the expression of growth-promoting genes.

This research aims to identify targeted agents that combined with TEAD inhibitors will prevent the acquisition resistance and increase the depth and duration of beneficial therapeutic response.

From the results of a genome-wide CRISPR screening of TEAD inhibitors in our laboratory, multiple genes and pathways were uncovered as new vulnerabilities and promising combination strategies for TEADi. Combination inhibitor treatments were evaluated via an in vitro synergistic assay across multiple HNC cell lines.

An in vitro clonogenic assay will be performed to validate the synergistic score followed by apoptosis detection to assess the potential for therapeutic targeting of the Hippo pathway. Subsequently, additional TEAD inhibitors will be incorporated to further observe combination effects.

If significant reduction in carcinoma cell expression is confirmed, in vivo models with the HNC oncogenes will be tested to investigate the relationship between YAP activity and HNC cell lines.

These analyses may support the development of synergistic synthetic lethal combination therapy options for HNC, offering improved therapeutic targeting and outcomes for patients.

CANCER POSTER SPECIAL SESSION

Speaker

H

Hannah Broyles

Lead Presenter | H - 6

IDH1 α-10 helix structural characterization using HDX-MS

1:00 PM – 2:55 PM

MASTER'S

The metabolic enzyme isocitrate dehydrogenase 1 (IDH1) resides in the cytosol and peroxisomes of eukaryotic cells and catalyzes an NADP+-dependent redox reaction which converts D-isocitrate (D-ICT) to α-ketoglutarate (αKG). Cancer-associated mutations in IDH1 confers the ability to catalyze a neomorphic reaction which produces an oncometabolite known as D-2-hydroxyglutarate (D2HG). Although IDH1 and its paralog IDH2 share highly conserved sequences, IDH1 contains a dynamic subdomain known as the α-10 helix which exists as a flexible loop and forms a helix upon substrate binding. This conformation change doesn't appear in IDH2 and this domain is retained as a helix regardless of substrate binding. The conformation change observed in the α-10 helix of IDH1 has been proposed as a regulatory mechanism, and previous studies have shown that inhibitors of cancer-associated IDH1 preferentially bind at this domain. Despite the structural differences, there are only three residues that differ between the α-10 helices of IDH1 and IDH2. To investigate this domain's role in catalytic efficiency, steady-state kinetics assays were conducted on mutant versions of IDH1 containing point mutations in the α-10 helix, substituting residues from the α-10 helix of IDH2. These "helix swap" mutations in IDH1 decreased catalytic efficiency relative to WT IDH1, indicating that changes to this domain hinder catalytic activity. This study is paired with hydrogen deuterium exchange mass spectrometry (HDX-MS) to resolve domain dynamics within the α-10 helix. Changes in deuterium uptake indicate shifts between flexible domains and more structured domains, which is observed in the substrate-dependent conformation change of IDH1. Preliminary analysis of HDX-MS data suggests that solvent uptake in the α-10 helix is decreased in the helix-swapped IDH1, suggesting that this domain is more structured following these mutations. Understanding the role of the α-10 helix in IDH1 regulation and catalytic efficiency is an important next step that may improve inhibitor selectivity in cancer-associated IDH1.

CANCER POSTER SPECIAL SESSION

Speaker

Josselyn Jacobo

Lead Presenter | H - 6

Understanding how mutant IDH1 impacts lipid metabolism.

1:00 PM – 2:55 PM

DOCTORAL

Mutations in isocitrate dehydrogenase 1 (IDH1) are among the most common metabolic alterations in gliomas, acute myeloid leukemia (AML), chondrosarcoma, intrahepatic cholangiocarcinoma, and thyroid carcinoma. These mutations confer a neomorphic activity that converts α-ketoglutarate (αKG) to the oncometabolite D-2-hydroxyglutarate (D2HG), driving epigenetic and metabolic reprogramming that promotes tumor progression. Although two FDA-approved inhibitors (AG-120 and AG-881) effectively suppress D2HG production, clinical responses vary, and many tumors continue to progress despite undetectable D2HG. This suggests that mutant IDH1 (mIDH1) induces additional metabolic or phenotypic changes independent of D2HG. Recent studies suggest that some of these metabolic alterations responsible for continued cancer pathogenesis involve lipid metabolism. IDH1 regulates lipid metabolism by generating isocitrate and NADPH, key substrates for NADPH-dependent de novo lipid synthesis. In contrast, mIDH1 loses the ability to perform the conventional reversible reaction and instead consumes NADPH during its neomorphic activity, contributing to altered lipid metabolism in tumors. Using Bligh–Dyer extraction and LC-MS, I identified differences in lipid species, particularly phosphatidylcholines, between glioma and fibrosarcoma cells expressing mIDH1 versus WT IDH1. A key lipid-related phenotype in many cancers is lipid droplet (LD) accumulation. While LDs have been observed in gliomas, how mIDH1 influences LD formation remains unclear. We previously detected LDs in glioma cells expressing WT and mutant IDH1 using transmission electron microscopy. Here, I aim to define how mIDH1 alters LD formation using immunofluorescence wide-field microscopy and quantitative image analysis with CellProfiler 4.2.8. Understanding how mIDH1 reshapes LD formation will reveal metabolic vulnerabilities specific to mIDH1-driven tumors and may identify a therapeutic target that complements existing FDA-approved mIDH1 inhibitors.

CANCER POSTER SPECIAL SESSION

Speaker

Katelyn Yunker

Lead Presenter | H - 6

Synthesis and Evaluation of AdSS Bisubstrate Inhibitors

1:00 PM – 2:55 PM

DOCTORAL

Non-malignant cells across most tissues express and utilize methylthioadenosine phosphorylase (MTAP), which plays a central role in the salvage pathway of adenine. In contrast, many common cancer cells lack MTAP expression and instead rely on adenylosuccinate synthetase (AdSS) as their primary source of adenine production. AdSS catalyzes a critical step in de novo purine biosynthesis by converting inosine 5′-monophosphate (IMP) to adenylosuccinate monophosphate (ASMP). Guided by previous findings, bisubstrate inhibitors are designed and synthesized based on the active site of AdSS to enhance drug performance as a potential therapeutic. Incorporating features from multiple known inhibitors and their derivatives, hydantocidin/1,2,4-triazolone and hadacidin, our inhibitors will contain two important pharmacophores: N-hydroxyl-N-formyl and 1,4-disubstitued-1,2,3-triazolo-nucleoside. These moieties serve as analogs of aspartate and IMP, respectively, and are bridged by a linker of varying lengths of hydrocarbons. The objective of this experiment is to identify the compound that most effectively inhibits AdSS while exhibiting favorable solubility, cellular uptake, and low toxicity toward healthy cells. This poster presents the design and synthesis of these compounds.

CANCER POSTER SPECIAL SESSION

Speakers

Garret Thomason

Lead Presenter | H - 6

Reagan Yee

Co-Presenter | H - 6

IDs regulate IL-6 and cancer stem-like cell features following chemotherapy in ovarian cancer

1:00 PM – 2:55 PM

DOCTORAL

Ovarian cancer (OC) remains the most lethal gynecological cancer. Discreet symptoms lead to late stage diagnosis, limiting treatment options. Most patients are initially responsive to chemotherapy, but over 80% of advanced cases relapse with treatment-resistant disease within 2 years. Recurrence has been attributed to a small subpopulation of cancer stem-like cells (CSCs) that possess the ability to resist chemotherapy, self-renew, and asymmetrically divide. ID1-4 proteins, also known as inhibitors of differentiation, regulate cell fate and differentiation in normal stem and progenitor cells. In gliomas, ID1-4 proteins have been identified as master transcriptional regulators of CSC identity, signaling to downstream pathways important for self-renewal, tumor initiation, and survival; however, their role in OC CSCs and recurrence is unclear. Recently, we found that ID1-3 gene expression significantly increased following chemotherapy treatment in OC clinical samples and cell lines, and higher gene expression of ID1 and ID3 was associated with worse clinical outcomes. We hypothesize that ID proteins are required for OC CSC survival, self-renewal, and tumor recurrence following chemotherapy. In a subcutaneous xenograft mouse model, we found that cancer cell ID2 and ID4 protein expression significantly increased within 3 days following carboplatin treatment compared to vehicle groups, but this trend waned at later time points. Furthermore, we saw ID1-4 gene expression significantly increased stepwise following one and two cycles of chemotherapy in OVCAR8, OVCAR4, OVCAR5, and OV90 OC cell lines. Using a pan-ID inhibitor, AGX51, we have significantly knocked down ID expression in the four OC cell lines, and quantified CSC presence and function. Our data shows ID inhibition in OC cell lines reduces chemotherapy-dependent increases in CSC marker expression by flow cytometry (ALDH), spheroid formation, and gene expression of SOX2 and IL-6. These studies highlight a novel target important in CSC maintenance that contributes to tumor progression and relapse.

CANCER POSTER SPECIAL SESSION

Speaker

Megan Keene

Lead Presenter | H - 6

Structural characterization of WT IDH2 and insights into acetylation-dependency on catalysis

1:00 PM – 2:55 PM

DOCTORAL

Wild-type IDH2 plays a key metabolic role in cancer, yet research has largely focused on mutant IDHs (mIDH) that generate the oncometabolite D-2-hydroxyglutarate (D2HG). Multiple studies have demonstrated that WT IDH2 drives reductive carboxylation and promotes tumor growth and treatment resistance. In parallel, studies also show that WT IDH2 is regulated by acetylation, although the mechanistic consequences remain unclear. Despite this importance, human WT IDH2 remains a relatively understudied enzyme. The absence of a human WT IDH2 structure and limited kinetic and regulatory insights can hinder rational drug design. To address this gap, I used spectroscopic tools and X-ray crystallography to investigate the kinetic and structural properties of WT IDH2 and its acetylation mimic. I conducted steady-state kinetic analyses of the WT enzyme in both the forward and reverse directions, and found that the efficiency of forward reaction is ~100-fold higher than that of the reverse. To explore the structural basis for this, I solved three crystal structures of human WT IDH2 in the closed conformation: two bound to forward-reaction substrates and one bound to reverse-reaction substrates. This represents the first structures of human WT IDH2 to date. After the kinetic and structural characterization of WT IDH2, I extended my investigation to acetylation-mimic variant. The K413Q mutation in IDH2, previously examined in both human and mouse enzymes, showed a ~2-fold decrease in kcat in the forward reaction. Moreover, NADP+ titration indicated that there is a ~9-fold increase in KM, indicating that acetylation mimic mutant likely interferes with NADP+ binding. To better understand the molecular interactions underlying this reduced activity, I solved the first crystal structure of the IDH2 K413Q. Overall, this study helps elucidate the mechanistic insights and structural dynamics of both WT IDH2 and its acetylation-mimic form. These findings have the potential to provide a foundation that can ultimately aid in the development of WT IDH2-selective inhibitors and chemical probes

CANCER POSTER SPECIAL SESSION

Speaker

Nino Mamasakhlisi

Lead Presenter | H - 6

Preliminary Study of a Cavity-Backed Pentagon-Shaped UWB Textile Antenna for Brain Tumor Detection

1:00 PM – 2:55 PM

UNDERGRADUATE

Microwave imaging (MWI) is an emerging, non-ionizing imaging technique that offers potential advantages over conventional modalities such as MRI, CT, and PET in terms of portability, cost, and sensitivity to dielectric contrast in biological tissue. In particular, MWI has been explored for brain tumor detection due to measurable dielectric property differences between healthy and malignant tissue. The performance of MWI systems is highly dependent on the bandwidth and radiation behavior of the antennas used, especially in wearable or helmet-based configurations. This project presents an initial investigation into the integration of a cavity-backed structure with a pentagon-shaped ultrawideband (UWB) textile slot antenna, motivated by its potential applicability to future brain tumor microwave imaging systems.

The standalone pentagon slot antenna exhibits broadband impedance behavior suitable for wideband microwave operation. When combined with a cavity, significant changes in impedance matching and radiation characteristics are observed, indicating strong interaction between the antenna and enclosure. To explore these effects, electromagnetic simulations were conducted in ANSYS HFSS using square and pyramidal cavity geometries, along with preliminary parametric studies to evaluate trends in impedance behavior and radiation stability. The results presented here provide early insight into cavity-backed UWB antenna behavior and help inform continued antenna development toward wearable MWI platforms for brain tumor imaging applications.

CANCER POSTER SPECIAL SESSION

Speaker

Penelope Romero Pimentel

Lead Presenter | H - 6

H - 7: Biological and Agricultural Sciences (U) 3

1:00 PM – 3:00 PM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

Adryan Aquino
Lead Presenter | H - 7

Carina Cruz
Lead Presenter | H - 7

Catherine Reyes
Lead Presenter | H - 7

Diya Vats
Lead Presenter | H - 7

Madelyn Stephens
Lead Presenter | H - 7

Rebecca Blum

Vayda Foy
Lead Presenter | H - 7

Zoe Glynn
Lead Presenter | H - 7

Characterizing MLH1 Mutation & HER2 Expression in Endocrine-Resistant Breast Cancer

1:00 PM – 2:55 PM

UNDERGRADUATE

Breast cancer remains the most commonly diagnosed cancer among women worldwide. Although endocrine therapy is effective initially, up to one-third of patients with ER+/HER2- breast cancer ultimately develop endocrine therapy resistance. Identifying the molecular drivers underlying this resistance is imperative for improving patient outcomes. Recently, endocrine therapy resistance has been linked to the loss of the mismatch repair (MMR) protein, MLH1, resulting in the upregulation and dependence on HER2 signaling. Defects in the MMR pathway, particularly involving MLH1, have been shown to alter tumor signaling networks that support endocrine resistance. Consistent with this, MLH1 deficiency is associated with elevated HER2 expression and enhanced growth activity. In the study, we investigated how patient-derived MLH1 mutations that drive aberrant cytoplasmic retention may influence HER2 activity in these endocrine-resistant tumors. We utilized the MLH1 G55V variant, which promotes cytoplasmic retention, as a case study to model how perturbations in MLH1 localization may alter downstream HER2-dependent signaling pathways as a mechanism to promote endocrine therapy resistance.

POSTER

Speaker

Adryan Aquino
Lead Presenter | H - 7

Impact of Fish Presence on Trophic Cascade in Eelgrass (Zostera Marina) Habitat

1:00 PM – 2:55 PM

UNDERGRADUATE

Understanding how predator-prey interactions affect the resilience of

eelgrass is essential to maintaining regulated dynamics within these

ecosystems. This study investigates how absence of fish predation on epifaunal abundance influence eelgrass growth and physiology. Treatments consisted of open and full cages to adjust presence of fish in the system with partial cages being the control. Eelgrass sheath width and dry weight was significant, exhibiting low measurements in caged treatments. However, cages also displayed a trend of high daily growth and percent bites. These

findings reflect a trophic cascade with increased epifaunal grazing

shifting allocation of energy towards rapid regrowth in eelgrass.

POSTER

Speaker

Carina Cruz
Lead Presenter | H - 7

Plasmid-Encoded Mechanisms of Bacterial Adherence in the Caenorhabditis elegans gut

1:00 PM – 2:55 PM

UNDERGRADUATE

Host-associated microbes play an essential role in metabolism, health, and overall well being. Bacterial colonization of the Caenorhabditis elegans intestine provides a powerful model for understanding how host-associated microbes establish and maintain residence within the gut. Previous work identified that Lelliottia jeotgali (LUAb3), a commensal bacterium found in wild C. elegans, carries a conjugative plasmid that we hypothesize contributes to attachment to the host intestine. This hypothesis suggests that several other Lelliottia isolates that adhere to the C. elegans gut similarly carry plasmids with highly conserved adherence loci. In contrast, this allows us to associate L. jeotgali lacking this plasmid with a lack of adherence, suggesting a plasmid-dependent mechanism for attachment. Interestingly, this plasmid encodes for a Type IV pilus (T4P) that is highly conserved across these adherence plasmids. T4P are long, retractable filamentous structures on the bacterial surface used for attachment, motility, and initiating interactions with host tissues. Though T4P have been shown to allow for pathogen attachment, a role of commensal attachment is unknown.

In this project, building on previous work in the lab demonstrating plasmid-dependent adherence in Lelliottia isolates, we hypothesized that a plasmid-encoded type IV pilus is required for commensal LUAb3 attachment to the C. elegans gut. To test this hypothesis, we knocked out the key ATP synthase pilB in LUAb3. After colonizing animals with LUAb3ΔpilB, we performed RNA fluorescence in situ hybridization (FISH) and quantified the fluorescence intensity to measure the extent of bacterial colonization. We found that loss of pilB led to a significant decrease in fluorescence intensity and thus, colonization. This indicates a new role for pilB in adherence of commensal bacteria.

Overall, our data suggests that acquisition of T4P encoded plasmids may assist in gaining the ability to colonize a wide array of host intestines. Understanding this mechanism may provide foundational insight for future applications

POSTER

Speaker

Catherine Reyes

Lead Presenter | H - 7

Vegetation response and burn severity dynamics in repeatedly burned southern California watersheds

1:00 PM – 2:55 PM

UNDERGRADUATE

Repeated wildfires can shape long-term ecosystem patterns in southern California, where vegetation composition and structure influence how landscapes burn and recover. In this study, we examine the Barrett and Lower Otay watersheds in San Diego County. These watersheds experienced multiple wildfires between 2000 and 2020. The Normalized Difference Vegetation Index (NDVI) and differenced Normalized Burn Ratio (dNBR) from Landsat 8 were used to evaluate vegetation conditions before and after each fire. We incorporated vegetation classifications to identify dominant vegetation types and assess their response to burn frequency and burn severity over time. We observed that vegetation type strongly affects fire behavior and post-fire trajectories. Chaparral and grassland systems had distinct recovery patterns, where vegetation that was healthier before fire generally experienced lower burn severity. Additionally, areas exposed to repeated fires had slower and more variable recovery, suggesting the cumulative stress on ecosystems that burn multiple times. These findings will contribute to understanding how vegetation characteristics influence long-term post-fire recovery and can support more informed decision-making for managing fire-prone regions.

POSTER

Speaker

Diya Vats

Lead Presenter | H - 7

Dry-Weather Water Quality and Sewage Detection in Alvarado Creek Using Fluorescence Sensors

1:00 PM – 2:55 PM

UNDERGRADUATE

Urban dry weather flows have been known to play an important, yet understudied, role in shaping water quality in urban streams. This study will examine diel patterns of dissolved organic matter and nutrients in SDSU's local Alvarado Creek using both grab samples and high frequency fluorescence sensors. In establishing daily baseline cycles, this monitoring approach allows for the identification of anomalies that may signal infrastructure failures, sanitary sewer overflows or illegal discharges. These findings will highlight the importance of using sensor based monitoring to better understand urban baseflow dynamics to support more responsive urban water management and inform water management practices that protect public health and ecological integrity.

POSTER

Speaker

Madelyn Stephens

Lead Presenter | H - 7

Ultrastructural Analysis of sHSP23 Overexpression in a Drosophila Model of IBM-3

1:00 PM – 2:55 PM

UNDERGRADUATE

Inclusion body myopathy type 3 (IBM-3) is a rare autosomal dominant degenerative muscle disease that results from a missense mutation on the myosin heavy chain 2a gene. A negatively charged glutamic acid is replaced by a positively charged lysine in a highly conserved region of the myosin head, leading to loss of protein function. Our lab created a Drosophila model of this disease in order to explore proteins that abnormally accumulate and how manipulating them affects muscle maintenance and function. Transmission electron microscopy (TEM) images of homozygous IBM-3 flies revealed structural damages and aggregates of misfolded proteins (inclusions) in indirect flight muscle (IFM) tissue, and these flies lacked flight ability. In heterozygous IBM-3 flies, the muscle was better maintained but minor damages persisted. i-TRAQ proteomics revealed that expression of small heat shock protein 23 (sHSP 23) was reduced in young and old IBM-3 flies by 3.77-fold and 2.06-fold, respectively. sHSPs are chaperones that assist with the protein folding process. Because inclusions were prominent and sHSP 23 expression levels were reduced compared to wild-type flies, we explored whether overexpressing this protein would assist with muscle maintenance as IBM-3 heterozygotes aged. IFM function was assessed using flight testing. At 4 weeks of age, IBM-3 heterozygotes with sHSP 23 overexpression flew significantly better than one control line, suggesting a positive impact of sHSP 23 overexpression on muscle maintenance in later stages of life. Light microscopy revealed no visible structural differences between the lines. I am now using TEM to resolve sarcomeric structures at a resolution of 7 nm. In addition to observing 4-week-old muscle, I am taking images of 8-week-old muscle. Although flight ability is lost at this advanced age, imaging could reveal whether sHSP 23 overexpression within the diseased state impacts muscle integrity at the end of the flies' lifespan. I aim to establish a quantitative scoring system to compare structural damages between each of the lines.

POSTER

Speaker

R **Rebecca Blum**

Chemotherapy-modulated Fibroblast-Derived Extracellular Matrices as a Model to Study Ovarian Cancer

1:00 PM – 2:55 PM

UNDERGRADUATE

High-grade serous ovarian cancer (HGSOC) is the deadliest gynecologic malignancy, largely due to late-stage diagnosis, widespread abdominal disease, and the development of chemotherapy resistance in over 80% of patients. Cancer-associated fibroblasts (CAFs) are a major cellular component of the ovarian tumor microenvironment (TME) and play a critical role in disease progression. CAFs actively synthesize and remodel the extracellular matrix (ECM), influencing cancer cell proliferation, migration, and resistance to chemotherapy. Recent studies suggest that CAFs respond to chemotherapy by adopting an activated phenotype characterized by increased α-smooth muscle actin (α-SMA) expression, F-actin polymerization, and cellular contractility. Chemotherapy exposure also alters ECM composition and organization, including elevated deposition of Collagen I, Collagen VI, and fibronectin, as well as increased matrix stiffness, crosslinking, and tension. However, the effects of chemotherapy-induced ECM remodeling on HGSOC cell behavior remains poorly understood. We hypothesize that chemotherapy-modified ECM promotes HGSOC cell survival and contributes to chemoresistance and disease relapse. To model chemotherapy-induced changes in the TME, we generated fibroblast-derived cell matrices (fCDMs) using 3T3 fibroblast cell lines treated with vehicle control or clinically relevant doses of carboplatin and paclitaxel under conditions that support three-dimensional matrix formation. Immunofluorescent staining of fCDMs for α-SMA, F-actin, and Hoechst revealed increased fibroblast activation following chemotherapy treatment. Immunifluorescent staining with Picrosirius Red revealed increased collagen deposition with chemotherapy-treated matrices. Ongoing studies will decellularize these matrices and seed them with HGSOC cells to assess changes in cancer cell survival and chemotherapy response. This work aims to define how chemotherapy-induced remodeling of fibroblast-derived ECM contributes to ovarian cancer recurrence and may inform new strategies to improve patient outcomes.

POSTER

Speakers

V **Vayda Foy**
Lead Presenter | H - 7

B **Barret Jones**
Co-Presenter | H - 7

Genomics of drought tolerance in domesticated hops (Humulus lupulus L.)

1:00 PM – 2:55 PM

UNDERGRADUATE

Humulus lupulus L., commonly known as hops, is a dioecious perennial cash crop that is grown throughout the Eurasian and North American continents, with a market size of over $8.8 billion, estimated to grow at 6.1% in the next decade for almost exclusive utility in the beer brewing industry. However, much like other agriculturally important crops, the profitable cultivation of hops are at increased risk of drought, fungal and viral pathogens. In recent years, US hops production has seen a 21% decline. Droughts are becoming more common with predictions of 0.54 °F temperature increase per decade. This increase in global temperatures is expected to decrease hops yields and has been shown to alter the production of bitter acid production and essential oil compositions. This project aims to address two overarching questions to understand how will hops production will cope under future drought scenarios and do any of the tested cultivars display potential breeding potential to drive thein the creation of future drought-tolerant cultivars, as well as soil-based strategies via microbiome replacement. Q1: What are the molecular changes in phytohormone biosynthesis genes such as those associated with abscisic acid and jasmonic acid (both hormones associated with drought tolerance) under simulated drought conditions? Q2: What are the changes in the soil rhizospheric microbial and fungal communities in cultivated hops in response to simulated drought conditions? We will use a combination of whole RNA sequencing from leaf tissues, phenotyping of plants and hop bines, and soil microbial 16s rRNA and fungal ITS sequencing to address outstanding questions about drought tolerance in North American hops. Results from both sequencing projects will be utilized to generate lines of drought-tolerant selectively bred hops for cultivation in Southern California, and microbiome seeding strategies for drought and pathogen tolerance.

POSTER

Speaker

Z **Zoe Glynn**
Lead Presenter | H - 7

H - 8: Biological and Agricultural Sciences (G) 3

1:00 PM – 3:00 PM | Location: Montezuma Hall

GRADUATE

POSTER

Speakers

B **Ben Caulfield**
Lead Presenter | H - 8

G **Gabriel Romo**
Lead Presenter | H - 8

J **Jackson Wolfe**
Lead Presenter | H - 8

K **Kendy Arana**
Lead Presenter | H - 8

R **Rabiul Alam Roni**
Lead Presenter | H - 8

R **Romi Levin**
Lead Presenter | H - 8

Sirena Rodriguez
Lead Presenter | H - 8

Cryptic Prophages: The Gifts that Keep on Giving

1:00 PM – 2:55 PM

MASTER'S

Bacteriophages (phages) are viruses that infect bacteria. About half are temperate, regulating their lifestyle in response to environmental and physiologic conditions. Temperate phages either produce new phage particles immediately after infecting a host cell or postpone forming new virions, turning off almost all their functions to establish lysogeny and become prophages. During lysogeny, some integrate their DNA into the host's chromosome and/or replicate as a low-copy number plasmid. Integrated prophages replicate as part of the host chromosome potentially indefinitely or until a signal, usually DNA damage or starvation, induces the prophage to return to its lytic lifestyle.

Prophages protect their hosts from infection and death by other lytic viruses and by coding gene products that help the host survive in adverse environments. For example, they confer resistance to reactive oxygen or nitrogen species produced by the innate immune response of infected animals. However, an inadvertent return to the lytic state is dangerous to the host and leads to the degradation of prophage genomes by loss of genes that promote induction and lysis, seen in strains such as E. coli MG1655. On the other hand, a Salmonella Typhiumurium LT2 strain from which all four active prophages have been deleted was more susceptible to DNA-damaging compounds compared to the parent LT2.

We are testing the hypothesis that prophage-encoded beneficial genes have been kept as part of cryptic prophages, highlighting their protective role in the physiology of the host. To do this, I collected >4500 Salmonella genomes and determined the presence or absence of every prophage gene, then used Random Forests and mean likelihood analysis to determine how conserved each viral gene is. We found DNA repair and membrane genes, as well as structural genes. Phage-derived DNA repair genes are known to contribute to DNA damage repair in bacteria. We will expand our analyses to other bacteria, and investigate the mechanisms of how these prophage-encoded functions may benefit the host.

POSTER

Speaker

Ben Caulfield

Lead Presenter | H - 8

PROFILING THE NOVEL IMPACTS OF THE ORGANOCHLORINE COMPOUNDS TRIS(4-CHLOROPHENYL)METHANE (TCPM) AND T

1:00 PM – 2:55 PM

MASTER'S

Tris(4-chlorophenyl)methane (TCPM) and tris(4-chlorophenyl)methanol (TCPMOH) are anthropogenic environmental pollutants that are believed to be byproducts of the organochlorine pesticide dichlorodiphenyltrichloroethane (DDT). TCPMOH is thought to be a metabolite of TCPM. These chemicals persist in the environment, and have been found to accumulate in aquatic mammal tissue and in human breast milk. They are also potential endocrine disruptors, yet no studies evaluating potential toxic effects have been conducted in the placenta, a transient organ with many endocrine functions critical for fetal development. In this study, TCPM and TCPMOH were screened for its cytotoxic effects, differential gene expression, invasion capacity, and changes to cell cycling. For cell viability and cytotoxicity, HTR-8/SVneo cells were treated with medium plus DMSO (control) or TCPM or TCPMOH (1 μM – 100 μM) for 24-hours and cytotoxicity was measured using Multiplex Multitox Cytotoxicity Assay. RNA sequencing of HTR-8/SVneo cells was used for differential gene expression after being treated with medium plus DMSO (control) or TCPMOH (1 μM or 10 μM). Differential gene expression was analyzed using DEseq2 in R. For invasion capacity, HTR-8/SVneo cells treated with medium plus DMSO (control) or TCPMOH (1 μM or 10 μM). Placental cells decreased in cell viability by 38.5% when exposed to TCPM concentrations of 100 μM, and by over 90% from TCPMOH concentrations of 50 μM or greater. Differential gene expression for 1 μM and 10 μM concentrations of TCPMOH yielded 3 shared significantly upregulated pathways: Inflammatory response, Interferon gamma, and KRAS signaling. Invasion capacity for 10 μM concentrations cell count was reduced by 62%. Cell proliferation decreased by 32% when exposed to 10 μM TCPMOH. Cell cycle determination indicated potential cell cycle arrest at S phase or delay in proliferation in both 1 μM and 10 μM concentrations of TCPMOH.

POSTER

Speaker

Gabriel Romo

Lead Presenter | H - 8

Morphological and Genomic Signatures of Urban Adaptation in Native San Diego Rodent Populations

1:00 PM – 2:55 PM

MASTER'S

In the past few decades, urbanization has become a leading form of alteration to ecosystems and their inhabitants, with many wildlife species being wiped out from the development. San Diego County has many isolated canyons that act as refuges from urbanization for native wildlife. Peromyscus californicus, Peromyscus eremicus, and Neotoma macrotis are three rodent species native to San Diego County that reside in these canyon refuges, each with different levels of sensitivity to the urbanization that surrounds them. Ongoing surveys of these canyons are being done by the San Diego Natural History Museum for all sorts of taxa, with small mammals being one such group being studied. DNA samples are currently being collected from these three species in order to conduct a population genetics study to determine the genetic health and structure of these rodents, as well as better understand the impacts that urbanization has on population-level genomics and potential selection for better survivorship in these animals. Collection is ongoing for this study, and more research will be done on the morphological and genetic features of these rodents.

POSTER

Speaker

Jackson Wolfe

Lead Presenter | H - 8

Light Sheet Microscopy of Neural Crest Cells in Mouse Embryonic Development

1:00 PM – 2:55 PM

MASTER'S

Down syndrome (Trisomy 21) is associated with consistent craniofacial and cardiac abnormalities, many of which originate from disruptions in neural crest cell development. Neural crest cells are a transient and highly migratory embryonic population that contributes to craniofacial structures, the peripheral nervous system, and cardiac outflow tract formation. Although gene dosage imbalance caused by Trisomy 21 is known to alter early developmental programs, the spatial organization of neural crest cells during early embryogenesis remains incompletely characterized. Establishing a high-resolution baseline of normal neural crest patterning is therefore essential for identifying disease-associated developmental disruptions.

In this study, we use light-sheet microscopy to generate three-dimensional maps of SOX10-positive neural crest cells in intact mouse embryos at embryonic day 10.5 (E10.5). SOX10 serves as a well-established marker of neural crest progenitors during migration and early differentiation. To provide anatomical reference and confirm tissue integrity, PECAM-1 is used as an endothelial control to label developing vascular structures. Embryos were processed using RNAscope or immunostaining and imaged without physical sectioning.

This work establishes a reproducible three-dimensional framework for neural crest organization and provides a foundation for future comparative studies using Trisomy 21 models to investigate how gene regulatory programs relevant to Down syndrome may alter neural crest development.

POSTER

Speaker

Kendy Arana

Lead Presenter | H - 8

Presentation Withdrawn

1:00 PM – 2:55 PM

MASTER'S

POSTER

Structural dynamics of casein isoforms in water

1:00 PM – 2:55 PM

MASTER'S

Molecular dynamics simulations were performed in GROMACS to examine the stability, flexibility, compactness, hydrogen bonding, and secondary structures of bovine αs1-, αs2-, β-, and κ-caseins in water, using protein structures retrieved from AlphaFold. RMSD analysis revealed that αs2-casein was the most stable (1.78 ± 0.12 nm), followed by αs1 (2.27 ± 0.11 nm), whereas β- and κ-caseins showed higher deviations (2.58 ± 0.18 nm and 2.62 ± 0.43 nm, respectively). RMSF profiles identified peak flexibility at residue 214 for αs1 (1.90 nm), residue 222 for αs2 (1.60 nm), residue 142 for β (3.40 nm), and residue 190 for κ (3.56 nm). The average radius of gyration confirmed differences in compactness: αs2 (3.03 ± 0.21 nm) and β (3.01 ± 0.27 nm) were the most compact, αs1 was intermediate (3.28 ± 0.25 nm), and κ adopted the most expanded conformation (3.97 ± 0.31 nm). Hydrogen bond analysis further reflected isoform-specific stability. Total hydrogen bonds were highest in αs2 (93.9 ± 5.7), moderate in β (80.0 ± 5.8) and αs1 (79.3 ± 7.7), and lowest in κ (50.4 ± 5.3). Backbone hydrogen bonds followed a similar trend, with αs2 maintaining 69.2 ± 3.5 compared to only 25.7 ± 2.7 in κ. Secondary structure analysis revealed predominantly disordered conformations, with coil dominating across isoforms, ranging from 48.6% in αs2 to 65.2% in κ. α-helix content was highest in αs2 (39.6%) and αs1 (34.1%), moderate in β (31.5%), and lowest in κ (16.7%), while β-sheet content was negligible (<1%). This study is a first step in characterizing the dynamic behaviors of individual casein isoforms in solution. Building on these findings, future work will focus on simulating calcium-casein interactions and micelle assembly.

POSTER

Speaker

Rabiul Alam Roni

Lead Presenter | H - 8

Identifying Phage Host Factors in Achromobacter xylosoxidans to Improve Phage Therapy

1:00 PM – 2:55 PM

MASTER'S

Cystic fibrosis (CF) is a genetic disease in which patients are unable to effectively clear mucus from their lungs, creating a favorable environment for bacterial growth and chronic infections. Although these infections can initially be treated with antibiotics, the bacteria develop resistance over time, leading to persistent, life-threatening disease. Recent experimental treatments with phage therapy (PT) have showed promise.

PT is especially important for pathogens like Achromobacter xylosoxidans (Axy), one of the most difficult organisms to manage in cystic fibrosis. Axy is an environmental gram-negative, naturally drug resistant bacterium that easily adapts to the immunocompromised CF airway. Long term treatment with antibiotics often fails. However, use of phages together with antibiotics has shown that, not infrequently, the phages promote the reemergence of antibiotic sensitivity. The molecular basis of this change has been ascribed to phages that use efflux pumps as receptors to enter their bacterial targets, although this is not always the case. Ideally, more phages that use efflux pumps would be isolated and used in PT. Carefully selected phage-antibiotic combinations may reduce Axy populations more effectively than either alone.

We have mutagenized Axy cells with the transposon Himar1 and selected mutants resistant to individual phages; these mutations can identify genes for host factors on which each phage relies to infect the cell and produce new progeny viruses. We are characterizing these mutations both for their effects on the phage and on bacterial physiology, including susceptibility to antibiotics (MIC and MBC tests) and growth rate, a proxy for fitness and competitiveness in the lung environment. Sequencing these mutations identifies the site of transposon insertion. These results will help us develop phage combinations (cocktails) that target different bacterial pathways, to improve the effectiveness and consistency of phage therapy for Achromobacter infections in CF patients.

POSTER

Speakers

Romi Levin
Lead Presenter | H - 8

Hamza Hajama
Co-Presenter | H - 8

Mapping Brazilian Crop Intensity with Machine Learning Techniques and Remote Sensing Data

1:00 PM – 2:55 PM

MASTER'S

This project aims to develop a 30-meter resolution product for mapping global crop intensity using Google Earth Engine and classification algorithms. Global food systems are facing increased pressure from a growing population while adapting to a changing and unstable climate. Accurate mapping of crop intensity, the frequency at which a field is cropped, is necessary for food security and planning. This project used remote sensing data and machine learning techniques to detect crop intensity in Brazil by building a supervised model and beginning work on an unsupervised model. To run the supervised model, training and validation datasets were constructed from a prime list of all ground reference points. A Random Forest (RF) classifier was trained in Google Earth Engine (GEE) using the training dataset and validated using the validation dataset. Google Satellite Embedding data was used in lieu of raw satellite imagery or a harmonization of such to streamline the coding processes. A crop mask was constructed using union logic for LGRIP30, WorldCover, and MapBiomas for the year 2021. Output rasters generated by GEE were visualized in QGIS at 30-meter resolution. A confusion matrix was generated in R Studio using an output CSV containing per-point prediction pairs. Overall accuracy of the classifier was 89.25% with weighted per-class user and producer accuracies of 89.3%. The “NonCropland” class was excluded from the accuracy calculation. Unsupervised classifiers were run in Google Earth Engine using MODIS 250-meter 16-day composites, Harmonized Sentinel & Landsat 30-meter bi-monthly composites, and Google Satellite Embedding data. Preliminary results from these unsupervised classifiers will be reported. Results from these differing models can provide insight into the spatial trends of crop intensity across Brazil. The models provide a framework for measuring crop intensity at a global scale using supervised and unsupervised machine learning techniques with remote sensing data.

POSTER

Speakers

Sirena Rodriguez
Lead Presenter | H - 8

Violet Navarrete
Co-Presenter | H - 8

H - 9: Behavioral and Social Sciences (G) 5

1:00 PM – 3:00 PM | Location: Montezuma Hall

GRADUATE

POSTER

Speakers

Charlie Kanelopoulos
Lead Presenter | H - 9

Colleen Janey
Lead Presenter | H - 9

Emily Long
Lead Presenter | H - 9

Olivia Pugsley
Lead Presenter | H - 9

Sierra Suelzle
Lead Presenter | H - 9

Steven Saldivar
Lead Presenter | H - 9

Tharshana Prakash
Lead Presenter | H - 9

Xavier Flores
Lead Presenter | H - 9

The Complexity of Food Environments: A Multi-Level GIS Analysis of Inequities in Food Access

1:00 PM – 2:55 PM

MASTER'S

Food deserts are areas with limited access to affordable, nutritious foods where economic and racial inequities often persist. Conventional approaches to food deserts oversimplify socially and spatially complex food environments into supermarket-centric GIS models. This research aims to expand beyond these approaches to understand how the social and spatial complexity of food environments influences food access and the distribution of racial inequities in San Francisco. Using data from the City and County of San Francisco, active registered food retailers were categorized into four categories with an associated quality weight: large-chain supermarkets (weighted 1.0), local supermarkets (weighted 0.75), produce markets (weighted 0.5), and convenience stores (weighted 0.25). An Origin-Destination network analysis was performed from each census block centroid to estimate food access at three, increasingly comprehensive, levels of analysis: access to supermarkets, access to supermarkets and produce stores, and a weighted measure of the quality of access to all store types. Racial inequities were apparent across all levels of food access. When analyzing access to supermarkets only, White residents experience higher access, while Asian, Hispanic/Latino, and Black/African-American residents experience lower access. With the addition of produce markets, White and Asian residents experience higher access, while Hispanic/Latino and Black/African-American residents still experience lower access, and the overall quantity of accessible stores improves for all residents. Lastly, when the potential quality of access is considered, Asian residents experience a higher quality of overall access, while Hispanic/Latino and Black/African-American residents experience a lower quality of access. These findings demonstrate the importance of shifting food access to quality improvements within existing food environment infrastructure. Produce markets greatly improve the quantity and quality of food access. Instead of focusing solely on supermarkets as the primary solution, subsidies and fu

POSTER

Speaker

Charlie Kanelopoulos
Lead Presenter | H - 9

Citizenship Status and Welfare Take-Up in California: Evidence of a Post-2016 Chilling Effect

1:00 PM – 2:55 PM

MASTER'S

Drawing on national survey data (ACS), this study investigates how Trump's first term in office affected noncitizens' participation in cash-assistance programs in California. Timely and policy-relevant, it underscores that eligible adults and children may not be receiving essential economic support, compromising both well-being and economic integration (Cheng & Lo 2022; Van Hook 2003; Van Hook & Bean 2009; Xu & Zhu 2022). Although extensive research has examined declines in public-assistance participation among immigrants following the 1996 Personal Responsibility and Work Opportunity Reconciliation Act, little is known about the continued, potentially sharper decline in participation among eligible noncitizens and how political factors may have reinforced a "chilling effect." I examine take-up rates and estimate the eligibility of citizens and noncitizens in cash-assistance programs during 2011–2015 and 2016–2020. I expect to find declines in eligible noncitizens' take-up of cash assistance relative to citizens during the Trump era despite stable or rising eligibility. Eligibility is defined as households with income-to-poverty ratios below 80 (income under 80% of the federal poverty threshold, adjusted for family size), native or foreign-born (residing in the U.S. ≥5 years), and presence of at least one related child. Findings will explore how political climate influences cash-assistance participation.

POSTER

Speaker

Colleen Janey
Lead Presenter | H - 9

Cognitive Control of Motor Output in Individuals at Clinical High-Risk for Psychosis

1:00 PM – 2:55 PM

MASTER'S

Deficits in response-related processing in people diagnosed with schizophrenia have been well documented in previous research. Prior studies found an impairment in the ability to modulate speeded response-related processing, likely related to cognitive control deficits as opposed to motor control deficits. Evidence suggests, in healthy individuals, responses can be modified based on objectives like speed or accuracy, wherein accuracy is often lower when speed is prioritized. An event-related potential (ERP) component is a voltage change recorded from the scalp that reflects specific psychological and neural processes. The lateralized readiness potential (LRP) is an ERP component often used to explore executive functions like cognitive control and response preparation. The LRP is useful in understanding the preparatory processes that occur prior to response execution. Prior studies found evidence of deficits while prioritizing speed in those diagnosed with schizophrenia, limited studies have directly assessed the LRP in individuals at clinical high-risk for developing psychosis (CHR). CHR is diagnosed in individuals who exhibit attenuated psychotic symptoms, brief periods of psychosis, or have family history of psychosis and related disorders. The LRP was recorded while HC individuals and CHR individuals completed a choice response task. On each trial, either a '@' or '$' symbol was presented for 200 ms, followed by a blank interval of 1300-1700 ms. Participants responded with the left or right hand using a gamepad, with stimulus–response mappings alternating every 20 trials to reduce automatic responding. Participants completed both speeded and unspeeded conditions emphasizing speed or accuracy, respectively. We hypothesize that, like schizophrenia, the CHR stage involves specific impairments in the ability to exert control over speeded response-related processing. By assessing CHR individuals, the potential effects of medication use and disease duration on response-related control will be minimized in a way that has not been feasible in studies of schizophrenia.

POSTER

Speaker

E

Emily Long

Lead Presenter | H - 9

Unhoused in San Diego, California: Results from the 2025 SDHeart Surveys

1:00 PM – 2:55 PM

MASTER'S

From 2014 to 2025, the number of people experiencing homelessness in San Diego increased by approximately 14%. As San Diego consistently ranks among the highest cost-of-living regions in the United States, housing instability remains a growing public health and social equity concern. The San Diego Homeless and Health Equality Research Team (SDHeart) is a San Diego State University-based research initiative that aims to enhance the understanding of the experiences, needs, and perspectives of people experiencing homelessness in San Diego County. This project presents findings from the SDHeart's 2025 community outreach surveys. Data were collected during three outreach events conducted in March, May, and December of 2025. Participants were eligible if they were 18 years of age or older and had experienced homelessness, housing instability, or couch surfing within the past 6 months. Participants were recruited from multiple locations throughout San Diego County and were interviewed by trained student volunteers, faculty members, and Metropolitan Transit System (MTS) workers. The survey included 34 questions during the first outreach events, with an additional 19 questions added in December to expand on emerging themes. Survey questions included information on demographics, safety and security, health and well-being, relocation and movement, and housing and services. Across all three outreach events, a total of 153 survey responses were collected, including six long-format video interviews that provided deeper qualitative context. Participants described diverse contributing factors, including economic hardship, health challenges, family disruption, and systemic barriers to stable housing. Together, the quantitative and qualitative findings underscore the various experiences within San Diego's unhoused population. These results represent an initial step toward centering the voices of people experiencing homelessness in San Diego County. By documenting and amplifying these lived experiences, SDHeart aims to inform future research and policy efforts.

POSTER

Speakers

O

Olivia Pugsley

Lead Presenter | H - 9

J

Jillian O'Keeffe

Lead Presenter | F - 9

The P3b in Response to Auditory Oddball Stimuli in Individuals at Clinical High Risk for Psychosis

1:00 PM – 2:55 PM

MASTER'S

Electrophysiological measures have been evaluated and used for identification of neural differences in individuals with disorders such as schizophrenia for decades. The P3 event-related potential (ERP) component has become one of the most prominently associated components with schizophrenia. The P3 waveform, also known as the P3b, reflects effortful top-down processing, specifically when individuals are engaged in a task that requires categorization of stimuli. Previous research has shown a prominent reduction in the amplitude of the P3b for stimuli from a rare category in people with schizophrenia. However, the results have been somewhat inconsistent across modalities and measures. Furthermore, limited research has explored the P3b in individuals who are at clinical high-risk for developing psychosis (CHR), a crucial pre-disease state that is defined by mild positive symptoms or poorer social functioning. The current study investigated both the amplitude and onset latency of the P3b in response to rare and frequent stimulus categories during an auditory oddball task in individuals at CHR for psychosis and age-matched controls. On each trial, a 100 ms pure tone was presented that was either high pitched (1500 Hz) or low pitched (500 Hz). Participants were instructed to press one button for the target tone (20% probable) and another button for the non-target tone (80% probable) for that block; the target and non-target tones alternated between the high-pitched and low-pitched tones across blocks. The EEG data were processed and analyzed to separately isolate the P3b to the rare and frequent tones. Analysis of variance (ANOVA) will be performed to identify differences in P3b amplitude and latency between CHR and control participants. Preliminary analysis indicates that we will find a difference in P3b amplitude between control and CHR individuals, as well as a delayed onset latency of the P3 in CHR individuals. These results will have important implications for identifying potential biomarkers in people at high risk of developing psychosis and related disorders.

POSTER

Speaker

Sierra Suelzle

Lead Presenter | H - 9

Examining the Social Impact of Environmental Solutions

1:00 PM – 2:55 PM

MASTER'S

Ecological improvements to disadvantaged communities may have negative consequences. Some scholars are concerned with hidden costs associated with ecological restoration, as they may act as “gentrification enablers” creating displacement (Becerra, 2024). This is known as green gentrification (Becerra, 2024). National City, CA (NC) is home to many who may be considered vulnerable to green gentrification. As of the 2024 census, NC’s population is 55,246 people, with 65% identifying as “Hispanic or Latino alone”, 17% as “Asian alone”, and 4% as “Black alone”(U.S. Census Bureau QuickFacts, n.d.). A hidden environmental concern for these residents are the 128 brownfield sites within NC boundaries. According to the Environmental Protection Agency, brownfields are defined as “abandoned, idled, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination” (He et al., 2024). Nature-based Solutions (NbS) were used to address the environmental concerns of a brownfield by Kimball Park Elementary School, resulting in the formation of Paradise Creek Educational Park (PCEP). NbS closely mimics natural processes, restoring ecological benefits, and reducing pollutant harm (Song et al., 2019). In this presentation I focus on a literature review regarding environmental justice, NbS, and brownfields. I then discuss my proposed research to conduct interviews with local residents of National City and examine archival data to evaluate the City’s efforts to avoid gentrification surrounding PCEP.

POSTER

Speaker

Steven Saldivar

Lead Presenter | H - 9

Supporting Smiles: Oral Health & Social Support Study

1:00 PM – 2:55 PM

MASTER'S

Purpose:

Oral hygiene behaviors established during young adulthood are critical for preventing dental disease. Yet, limited research has examined adherence to American Dental Association (ADA) brushing guidelines among Mexican American young adults, a population experiencing oral health disparities. This study examined adherence to ADA brushing guidelines and factors influencing oral hygiene behaviors in this population.

Methods:

Cross-sectional survey data were collected between May-December 2025 using Qualtrics. Eligible participants were current San Diego State University (SDSU) students aged 18–30 who self-identified as Mexican American, had a valid SDSU email address, and could read, write, and speak English. Participants were recruited through flyers and in-person outreach and received a gift card upon survey completion. Survey measures included brushing and flossing frequency, oral health knowledge and attitudes, Health Belief Model constructs, the Oral Health Behavior Social Support Short Form (OHBSS-SF) scales, and demographic characteristics. Descriptive, bivariate, and unadjusted logistic regression analyses were conducted in SPSS version 31 (N = 187) to examine factors associated with adherence to ADA brushing guidelines.

Results:

This study is a work in progress. Preliminary bivariate and unadjusted logistic regression analyses found no statistically significant associations between oral hygiene product use and meeting ADA brushing guidelines. Fluoride toothpaste use was not associated with meeting ADA brushing guidelines (OR = 0.79, p = 0.64), and toothbrush type was also not significantly associated with adherence; however, adults using electric toothbrushes had slightly higher odds of meeting ADA brushing guidelines compared to manual toothbrush users (OR = 1.24, p = 0.57).

Conclusion:

Preliminary findings suggest that oral hygiene product use alone does not explain adherence to ADA brushing guidelines among Mexican American young adults, and analyses are ongoing to examine behavioral and psychosocial influences.

POSTER

Speaker

Tharshana Prakash
Lead Presenter | H - 9

THE IMPACT OF MEDIA ON GROWING OPPOSITION TO IMMIGRATION AMONG U.S. LATINOS

1:00 PM – 2:55 PM

MASTER'S

How much of an impact does conservative news media have on explaining why there is a rise in anti-immigrant sentiment among U.S. Latinos? Based on previous literature, the rise in Latino conservatism and anti-immigrant sentiment has been gradually increasing in the United States. However, with the election of President Donald Trump in 2016, we have seen an alarming increase in anti-immigrant sentiment and even political violence against immigrant populations. Due to feelings of assimilation, nationalism, and traditionalism, Latinos residing in the U.S. sympathize with right-wing media narratives, greatly reinforcing anti-immigrant sentiment. Overall, the news media reinforce and propagate central values and anxieties within the Latino community that dissociate Latinos from immigrants, explaining this shift. To answer these questions and prove my hypothesis, I used a mixed-methods approach by interviewing 10 San Diegan residents and administering a survey in San Diego, collecting nearly 500 respondents. The interviews and survey are meant to complement one another and explain both the micro and macro reasons for the rightward shift among U.S. Latinos. After running a few OLS regressions utilizing my survey data, I have found a statistically significant correlation between respondents' levels of media consumption and their attitudes toward immigration. Additionally, my interviews have expanded on these findings by collectively acknowledging this rightward shift and offering various insights into why there is growing anti-immigrant sentiment. In sum, the media has a direct and significant impact on people's attitudes towards immigration.

POSTER

Speaker

Xavier Flores
Lead Presenter | H - 9

K - 3: Visual and Creative Arts Exhibit (U) 1

1:00 PM – 3:00 PM | Location: Montezuma Hall

UNDERGRADUATE

EXHIBIT

Speakers

Aden Carlson
Lead Presenter | K - 3

Quy Pham
Lead Presenter | K - 3

Zola Choi
Lead Presenter | K - 3

Mia Murphy
Lead Presenter | K - 1

LoveBites

1:00 PM – 2:55 PM

UNDERGRADUATE

In ARZU OSKAL's Packaging class (ART 450), students were challenged to reimagine food truck packaging, an assignment designed to push creative thinking while addressing real-world design challenges. For my project, I created a concept for a charcuterie board food truck, LoveBites, a unique approach to mobile dining that brings gourmet, customizable snack experiences directly to customers. Unlike traditional food trucks, which often focus on quick, handheld meals, LoveBites emphasizes a premium, interactive food experience that encourages sharing and personalization.

The project includes original packaging designed specifically for a "make-your-own-to-go" charcuterie board. Each component of the packaging was carefully considered to balance functionality with aesthetic appeal. I explored materials that would maintain freshness, provide durability for on-the-go consumption, and create an engaging unboxing experience. The design also incorporates playful brand elements and visual storytelling, allowing the packaging to communicate the premium, yet approachable, personality of LoveBites.

My design process involved extensive research into current food packaging trends, user behavior, and mobile dining logistics. Sketching, prototyping, and iterating on various packaging formats allowed me to experiment with how customers interact with and perceive the brand. I focused on elements such as compartmentalization for different charcuterie components and easy-to-carry structures to enhance convenience without sacrificing style.

Beyond functionality, the project also explores how packaging can contribute to the overall brand experience. LoveBites packaging aims to create memorable moments for customers, offering a sense of occasion in everyday life and challenging the notion that food truck dining must be casual or utilitarian. This project allowed me to investigate the intersection of design, branding, and human experience, ultimately demonstrating how thoughtful packaging can elevate both product and experience in the mobile food industry.

EXHIBIT

Speaker

Mia Murphy
Lead Presenter | K - 1

Live! at the Intersection of Leadership and Live Entertainment

1:00 PM – 2:55 PM

UNDERGRADUATE

Stage management sits at the intersection of leadership and organization, requiring both people-centered communication and precise information systems to sustain live performances. This presentation examines how stage managers integrate leadership practices and organizational strategies to guide live entertainment across theatre, concerts, and large scale events, with a case study of the Super Bowl halftime show. Having contributed to two halftime productions during my college career, with the third scheduled for February, this study analyzes the event's complex coordination systems to examine how leadership and organization function under extreme time and technical pressure, and how these systems differ from other live entertainment management models. Drawing on leadership theory, organizational research, and project management frameworks, the study explores how stage managers adapt structure and communication to maintain clarity and collaboration in unpredictable conditions. Through reflective analysis of my own stage management experiences and an interactive exhibit featuring a mock technical booth, participants will engage directly with the cue calling and decision making processes that define this work. The exhibit demonstrates how effective stage management transforms theory into real time systems of coordination, revealing how creative adaptability and organizational precision maintain stability across the diverse landscapes of live entertainment.

EXHIBIT

Speaker

Aden Carlson
Lead Presenter | K - 3

Wellness Pavilion

1:00 PM – 2:55 PM

UNDERGRADUATE

The project is a proposal of a pavilion on campus. Completely made of steel, wood, and concrete/plaster, the structure serves as a small cove for socialization and access to the resource center. Due to it's location, it aims to facilitate involvement and effective foot traffic regulation.

EXHIBIT

Speaker

Quy Pham
Lead Presenter | K - 3

Cellular

1:00 PM – 2:55 PM

UNDERGRADUATE

Cellular is a larger part of Womanhood the Series, which comprises of 5 episodes so far, directed by 5 women across 5 states. Michelle, a microbiology professor racing to finish a critical grant proposal, is pulled into a cascade of superfluous demands. When a documentary filmmaker notices Michelle is overwhelmed by obligation, she urges her to fight the imbalance and refocus on the science that brought her here in the first place.

Cellular uses comedy as an access point to bring the struggles of women in academia to the surface. In filmmaking, comedy can drive a point without confronting or overwhelming audiences, instead of telling it straight. The objective of Womanhood the Series is to take a comedic approach to the awkward and often taboo subjects that society likes to stigmatize. Humor opens doors for humans to relate with one another, to empathize subconsciously. For this project, I have assisted in pre-production, production, and post-production for the director/editor of Cellular, giving me scope to every stage of the filmmaking process from rewrites to picture lock.

EXHIBIT

Speaker

Z **Zola Choi**
Lead Presenter | K - 3

L - 3: Theatre Presentation - Table Reading

1:00 PM – 3:00 PM | Location: Montezuma Theatre

UNDERGRADUATE/GRADUATE

TABLE READING

Speakers

A **Alexander Ameen**
Lead Presenter | L - 3

C **Courtney Corey-Armstrong**
Lead Presenter | L - 3

K **Kylee Kyte**
Lead Presenter | L - 3

Rigoberto Ganceda
Paid Intern | PAC

Bonnie and Regina Say Goodbye to Hope

1:10 PM – 1:35 PM

MASTER'S

Two women grapple with the fallout of the recent death of a family member, including who will take responsibility for a newborn baby girl. A ten-minute play.

TABLE READING

Speaker

A **Alexander Ameen**
Lead Presenter | L - 3

Aunt Flo and Other Mysteries

1:35 PM – 2:00 PM

MASTER'S

This spoken word piece traces a girl's coming of age during the 1980s and 90s, beginning with a childhood hunger for information about her own body and ending in a teenage reckoning with power and credibility. At nine years old, she is denied access to Judy Blume's Are You There God, It's Me, Margaret, one of the few books that openly addressed female puberty. With no language and no guidance, she learns what it means to "become a woman" through dance class, department stores, playground rituals, and the scrutiny of other people's eyes.

The piece then moves forward to high school, as the speaker comes of age during the Clarence Thomas confirmation hearings. While the country debates whether sexual harassment is real, she is experiencing it firsthand from male teachers. When she reports what is happening, her school does nothing, insisting that sexual harassment is not an issue. The message is clear: endure it, stay quiet, move on. Blending humor with discomfort, the performance tracks how small, risky acts of defiance become a way to survive. Ultimately, the piece asks what it costs girls when they are taught early that their experiences are negotiable.

TABLE READING

Speaker

Courtney Corey-Armstrong
Lead Presenter | L - 3

The Ex-Lovers Convention

2:00 PM – 2:25 PM

UNDERGRADUATE

Acacia and Brent stumble into each other's lives in the same bar on the same night in what feels like a cruel coincidence more than an act of fate. Facing their own losses, what these two discover about each other, and themselves, will alter their lives forever.

TABLE READING

Speaker

Kylee Kyte
Lead Presenter | L - 3

Gate Money: Dramatizing the Complexities of Reentry

2:25 PM – 2:50 PM

UNDERGRADUATE

In the United States, 95% of those who are incarcerated will return to their communities. In order to successfully reintegrate into society, an individual must have a strong network that consists of emotional, mental, and financial support. Those who do not have this support are more likely to recidivate within the first three years of release. When an individual is released with supervision (through probation or parole), they are afforded assistance in navigating the bureaucracy of reentry, including obtaining transitional housing for up to six months, signing up for MediCal, and acquiring legal identification documents such as a social security card and drivers license. A wrinkle to this dilemma is presented by those individuals who have been resentenced by the court to time served after decades of incarceration. They are then released without supervision and therefore do not have the resources provided by the state or the county. Community supervision declined between 2012 and 2022 by 23%, indicating that fewer individuals are being released on probation or parole. Therefore, there is need for attention, at a social and policy level, to individuals being released by the courts without supervision. The urgency of this issue requires thinking outside of the box to bring awareness and visibility to the complexities of being a returning citizen who is only given $200, colloquially referred to as "gate money" to begin their new life. The aim of this project is to leverage the power of theatre to prompt awareness and dialogue about an issue that is rarely addressed in conversations about mass incarceration. This project consists of the performance of a staged reading of a new play called Gate Money which seeks to highlight the challenges an individual faces as he works to rebuild his life after spending the last thirty years in prison. Theatre has a tradition of giving voice to individuals and issues that are often overlooked. This project builds on that tradition in pursuit of a more socially just world.

TABLE READING

Speaker

Rigoberto Ganceda
Paid Intern | PAC

D - 1: Behavioral and Social Sciences (G) 8

3:00 PM – 5:00 PM | Location: Legacy Suite

GRADUATE

ORAL PRESENTATION

Speakers

Carolina Costa
Lead Presenter | D - 1

Casius Snyder
Lead Presenter | D - 1

Jada Reed
Lead Presenter | D - 1

Wookjin Park
Lead Presenter | D - 1

Presentation Withdrawn

3:15 PM – 3:35 PM

MASTER'S

ORAL PRESENTATION

Speaker

Presenter Withdrawn

The role of language and depression in the associations of PTSD and cognition among Latine adults

3:35 PM – 3:55 PM

MASTER'S

Background: Post-traumatic stress disorder (PTSD) is associated with increased risk of cognitive and functional decline. However, few studies have investigated these relationships in the Latine population and how they may differ by primary language and depressive symptoms.

Methods: The initial sample included 1,126 Latine adults aged 42-99 years from 35 National Alzheimer's Coordinating Center sites. Using propensity matching to reduce sample bias, 145 participants without PTSD were matched on age, sex, and education to 73 participants with PTSD (self-reported history). The 10-item Functional Assessment Scale was used to assess the instrumental activities of daily living (IADLs), and cognitive assessments measured semantic fluency, confrontation naming, verbal memory, attention/working memory, processing speed, and executive functioning. Moderators included primary language (English vs. Spanish) and self-reported depressive symptoms (Geriatric Depression Scale). Covariates included age, sex, education, and marital status. Linear regression models tested the moderating roles of primary language and depressive symptoms in the associations between PTSD status (history vs. no history) with IADLs and cognition.

Results: Significant interactions were found for PTSD x language ($F(1, 178) = 4.03$, $p = .046$) and PTSD x depression ($F(1, 178) = 4.09$, $p = 0.45$) on executive functioning (Trail B). Specifically, Spanish speakers with PTSD performed worse than English speakers with and without PTSD ($ps < 0.05$). Additionally, higher depression scores were significantly associated with worse performance only among those without PTSD ($p < 0.001$). No main associations by PTSD or other significant interactions were detected for cognitive or IADL outcomes.

Discussion: Our results suggest that language-related and depression factors may play a more central role in executive functioning than PTSD status alone, highlighting the importance of considering such factors among Latine individuals.

ORAL PRESENTATION

Speakers

Carolina Costa
Lead Presenter | D - 1

Andrea Chavira
Co-Presenter | D - 1

An Observational Code for Sustained Time-Based Child Compliance in the DPICS Clean-Up Situation.

3:55 PM – 4:15 PM

MASTER'S

Child compliance is a primary treatment target of Parent–Child Interaction Therapy (PCIT) and is commonly assessed using the Dyadic Parent–Child Interaction Coding System (DPICS-IV). Although the DPICS-IV compliance codes effectively capture children's immediate compliance to parental commands, they may not fully capture sustained child compliance during the Clean-Up task, particularly when children continue to engage in clean-up behavior without requiring additional commands. The current study aimed to develop coding guidelines for sustained observed child compliance in the DPICS-IV Clean-Up situation and to evaluate the reliability, validity, and clinical utility of this code. Participants were 32 caregiver–child dyads from a pilot clinical trial of a personalized version of PCIT for racially and ethnically diverse families with children between 2-7 years old (M = 4.66, SD = 1.33, 34% girls) presenting with disruptive behavior problems and their caregiver (M age = 37.94, SD age = 8.25; 94% female, 6% male). Sustained compliance was coded across 5-second intervals during the Clean-Up task using newly developed guidelines. Results indicated strong interrater agreement for the sustained compliance code at both pre-treatment (93%, κ = 0.86) and post-treatment (96%, κ = 0.88) assessments. Children demonstrated significant increases in sustained compliance from pre- to post-treatment. Compared to the original DPICS-IV compliance codes (r = -0.09, p = 0.66), sustained compliance (r = -0.31, p = 0.11) showed a stronger association with post-treatment scores on the ECBI and an improved ability to differentiate between children in the normative versus clinical range at post-treatment. ROC analyses suggested higher overall classification accuracy and greater sensitivity to recovery for the sustained compliance code relative to the standard DPICS. Findings suggest that sustained observed child compliance may provide an additional, clinically meaningful measure of treatment outcomes and that this new code may serve as a supplement to existing DPICS-IV child compliance codes.

ORAL PRESENTATION

Speakers

C **Casius Snyder**
Lead Presenter | D - 1

S **Sienna Perez**
Co-Presenter | D - 1

Decolonizing Birth: Creating a Practice of Reclaiming Body Sovereignty

4:15 PM – 4:35 PM

MASTER'S

This paper examines how a U.S. medical system built on the exploitation of birthing bodies of color continues to produce harm under the guise of care. It argues that addressing these harms requires a birthworking movement grounded in decolonial practices. Birthworkers, individuals who support and advocate for people before, during, and after birth, occupy a unique position to mitigate medical hostility; however, without a decolonial framework, birthwork risks reproducing the very power structures it seeks to resist. Drawing on decolonial theory and reproductive justice frameworks, this work situates historical and contemporary reproductive oppression within the colonial foundations of the United States. These forms of hostility disproportionately impact communities of color and queer people. This paper asserts that decolonial birthwork prioritizes bodily sovereignty and understands the multiplicity of knowledge, offering a necessary intervention against ongoing reproductive violence. These principles are developed through a decolonial analysis of the current medical system and an examination of a decolonial birthworking collective.

ORAL PRESENTATION

Speaker

J **Jada Reed**
Lead Presenter | D - 1

Mental health outcome improvements: Early psychosis intervention in Children & TAY

4:35 PM – 4:55 PM

MASTER'S

Research Objective: After the COVID-19 pandemic, deterioration of child mental health in the U.S. increased the need for policy intervention. Particularly, childhood psychosis requires intervention to prevent schizophrenia (NIMH, 2023). However, there has been limited research that compares differences in effectiveness across the youth age groups. This study analyzed whether improvement patterns before and after early intervention for psychosis differed significantly between children (10-15) and transitional age youth (16-25).

Study Design: This study applied a difference-in-differences approach, comparing changes in mental health indicators before and after an early intervention for psychosis between 10-15 and 16-25 age groups. This study analyzed participants of Kickstart, an early intervention for psychosis program for aged 10-25 in San Diego. Youth who screen positive for a first episode of psychosis (FEP) can participate in the program.

Population Studied: This study analyzed secondary data on mental health indicators measured in the Kickstart program. The sample included participants who enrolled in the Kickstart program between July 2021 and June 2025.

Principal Findings: After the early intervention, improvements in the Structured Interview for Psychosis Risk Syndromes and the Scale of Prodromal Symptoms (SIPS/SOPS) were observed in both age groups. Higher scores on SIPS/SOPS indicate greater severity. For negative symptoms (the loss of functioning), the improvement was greater in the 16-25 age group than in the 10-15 age group. 10-15 age group showed a 21.9% reduction in SOPS score for negative symptoms, while 16-25 age group showed a 33.2% reduction.

Conclusions: The findings suggest that the effects of early intervention for psychosis may be more limited among younger children compared to transitional age youth.

Implications: The 10-15 age group showed smaller mental health improvements, but early intervention remains valuable because mental health affects individuals throughout their lifetime. Refining intervention strategies can be considered.

ORAL PRESENTATION

Speaker

Wookjin Park

Lead Presenter | D - 1

D - 10: Physical and Mathematical Sciences (U/G) 1

3:00 PM – 5:00 PM | Location: Presidential Suite

UNDERGRADUATE/GRADUATE

ORAL PRESENTATION

Speakers

Isabel Roji

Lead Presenter | D - 10

Megan Oseas

Lead Presenter | D - 10

Nate Webb

Lead Presenter | D - 10

Vincent Juliano

Lead Presenter | D - 10

Moor macaques' (Macaca maura) interactions with plastic waste in South Sulawesi, Indonesia

3:15 PM – 3:35 PM

MASTER'S

Human-induced plastic pollution increasingly degrades terrestrial ecosystems, presenting urgent conservation challenges for wildlife and local communities. The moor macaque (Macaca maura), an endangered primate endemic to Sulawesi, Indonesia, frequently encounters plastic waste along roadside habitats within a national park; however, the nature of that waste and macaques' interactions with it remain poorly understood. We examined macaque-plastic interactions using all-occurrence behavioral sampling, mapped plastic waste using transect surveys, and assessed human perspectives on plastic pollution via semi-structured interviews. Across the documented interactions (N=1376), individuals from all age/sex classes engaged with plastic items, predominantly in extractive foraging (53%) and exploratory handling contexts (46%). Using generalized linear mixed models, we found that infants and juveniles had a higher probability of interacting with plastic, exhibited longer average interaction durations, were more likely to engage in non-foraging exploratory interactions, and employed oral manipulation techniques more often than adults. Transect surveys (N=267) identified cups, bottles, and bags as the most common roadside plastic item types which represented the majority (68%) of macaque-plastic interactions. Infants disproportionately handled smaller, hazardous items such as bottle caps (18%). Ethnographic interviews (N=24) with national park staff and local community members provided detailed local ecological knowledge about the emergence of age-related trends in macaque bottle-opening techniques, roadside waste accumulation patterns, and relationships between conservation authorities and communities. These findings demonstrate how easily accessible roadside plastics provide alternative foraging opportunities and create high-risk environments for macaques in early life history stages. These results inform targeted waste management approaches in protected areas and contribute to our understanding of behavioral innovation among primates facing rapid environmental change.

ORAL PRESENTATION

Speaker

Isabel Roji

Lead Presenter | D - 10

Photophysics of Gold Cavity Coupled Moiré Exciton Polaritons in MoS_2/WS_2 Heterobilayers

3:35 PM – 3:55 PM

UNDERGRADUATE

Twisted transition metal dichalcogenide (TMDs) heterostructures form moiré superlattices that host excitons with distinct optical properties driven by strong Coulomb interactions. In particular, MoS_2(Molybdenum Disulfide) and WS_2(Tungsten Disulfide) heterobilayers support moiré excitons whose energies and spatial localization can be tuned through twist angle and coupling to engineered photonic environments. This makes them promising candidates for quantum photonic applications. In this project, we investigate the photophysics of moiré excitons coupled to gold cavities, where strong light matter interactions lead to exciton polariton states. MoS_2 and WS_2 heterostructures are transferred onto sputtered gold cavities with thickness ranging from 200-500 angstrom allowing methodical control of the optical cavity response. White light spectroscopy is used to characterize the thin film thickness, material composition, and spectral features of the coupled exciton cavity system and examine how cavity geometry influences excitonic resonances, and spectral shifts. Gold cavities enhance photonic emission through the Purcell Effect which is the confinement of electromagnetic fields at the dielectric interface, increasing the local optical density of states. The Purcell Effect accelerates spontaneous emission and enhances the overall intensity of emission escaping the cavity, in turn improving the efficiency from the 2D heterostructures. The results demonstrate how cavity geometry is essential for tailoring the optical response of MoS_2/WS_2 moiré heterostructures integrated with photonic structures. Current efforts focus on transferring and stacking the heterostructures onto the fabricated gold cavities to study the cavity modified excitonic behavior.

ORAL PRESENTATION

Speaker

Megan Oseas

Lead Presenter | D - 10

Optothermal Properties of Van der Waals Heterostructures Supported by Machine Learning

3:55 PM – 4:15 PM

UNDERGRADUATE

Van der Waals (vdW) heterostructures of two-dimensional (2D) transition metal dichalcogenide (TMD) semiconductors show promise for quantum information science including phenomena such as Bose-Einstein Condensation, and quantum light emission. There are limited studies investigating the thermal and opto-thermal properties of semiconducting vdW heterostructures. Deep learning has proven to be useful in spectral analysis, particularly for predicting Raman spectra of TMDs. We present a deep learning methodology for hetero- and homo-structure of TMDs to investigate the thermal properties of moiré superlattices. This work aims to model the optothermal properties of MoS2 and WS2 homostructures and heterostructures by the prediction of single flake Raman spectrums to their superstructure. These spectra are a function of global temperature and laser power, which we can build a prediction of thermal properties such as thermal conductivity and the thermal expansion coefficient. A recurrent convolutional neural network was implemented and paired with metadata knowledge injection techniques to synthesize the spectra. This model accurately predicts Raman shifts in the temperature range of 90-300K, simultaneously enhancing the design selection of moiré superlattices.

ORAL PRESENTATION

Speaker

Nate Webb

Lead Presenter | D - 10

Optoelectrical Properties of Interlayer-Excitons in Gated Moiré Superlattice Heterostructures

4:15 PM – 4:35 PM

UNDERGRADUATE

Transition Metal Dichalcogenides (TMDs) and fabrication of TMD twisted Moiré heterostructures, have proven to be a promising candidate for applications to quantum technology due to their formation of Interlayer-excitons (IXs). Formed at the planar boundary between monolayer flakes, bosonic IXs exhibit both long lifetimes and quantum emission capability. While optical exciton, modulation, and characterization of TMD IXs is well documented, the recent advent of electrical control has proposed an exciting and novel subfield of experimental exciton research. Particularly unexplored in selenide heterostructures, application of voltage & current sources at graphene gates enables the manipulation of charge carrier density at monolayer boundaries, producing novel effects in IX formation. Facilitation and measurement of gated heterostructures are gathered by standard continuous excitation and time-dependent spectroscopy, in addition to electroluminescence and resistive measurements extracted on a table-top probe station. All measurements are yielded from hBN-encapsulated heterostructures comprised of mechanically exfoliated monolayer flakes and assembled by a motorized 2D materials transfer stage. Through previously accrued optical measurements and extrapolated results, electrical application to an MoSe2/WSe2 structure will be pursued with the aim of documenting novel impacts to known IX characteristics. Results displaying extended lifetime, increased emission intensity, or modulated emission energy have potential to further the current path toward optimizing solid-state quantum emitters and propose long-lived IX as a possible vessel for quantum information systems.

ORAL PRESENTATION

Speaker

V **Vincent Juliano**
Lead Presenter | D - 10

D - 11: Behavioral and Social Sciences (G) 9

3:00 PM – 5:00 PM | Location: Leon Williams Room, Love Library 431

GRADUATE

ORAL PRESENTATION

Speakers

A **Alyssa Lawrence**
Lead Presenter | D - 11

C **Candace Juhala**
Lead Presenter | D - 11

J **Jerry Paras**
Lead Presenter | D - 11

Julio Rodriguez
Lead Presenter | D - 11

V **Victoria Joya Euceda**
Lead Presenter | D - 11

CVD Risk Moderates the Association Between TBI Severity and Attention in Latino Adults

3:15 PM – 3:35 PM

MASTER'S

Although cognitive deficits are common immediately following traumatic brain injury (TBI), recovery is often expected. Less is known about long-term effects of TBI in adults, particularly among Latino populations who face notable disparities in TBI care and recovery and have a high prevalence of cardiovascular disease (CVD) risk factors. We hypothesized that greater TBI severity (moderate-to-severe vs. mild) would be associated with poorer cognitive performance and that this association would be more pronounced in those with greater CVD risk.

Participants were 57 Latino adults aged 46-85 years from the TBI Model System database. Cognitive performance was assessed using the Brief Test of Adults Cognition by Telephone (BTACT), including immediate and delayed word recall, backward digit span, category fluency, and backward counting. Linear regression models examined associations between TBI severity (mild versus moderate-to-severe) and cognition. Moderation analyses tested whether CVD risk modified the relationship between TBI severity and cognition. Models adjusted for age, sex, education, socioeconomic status, and language.

Moderate-to-severe TBI was associated with lower scores on backward counting relative to those with mild TBI (B= –5.52, p= .03). CVD risk significantly moderated the association between TBI severity and backward counting (interaction B= –8.40, p= .048) such that higher CVD risk was strongly associated with poorer performance in the moderate-to-severe TBI group (r= −.55, p= .007) but not in the mild TBI group (r= −.11, p= .48). Fisher's r-to-z comparison trended toward a stronger association in the moderate-to-severe group, although the difference did not reach significance (z= 1.81, p= .07).

Backward counting is a measure of attention/working memory and may be sensitive to long-term cognitive vulnerabilities associated with greater TBI severity. Elevated CVD risk appears to exacerbate these attentional deficits, highlighting the importance of vascular health in cognitive outcomes following TBI among Latino adults.

ORAL PRESENTATION

Speaker

A **Alyssa Lawrence**
Lead Presenter | D - 11

Understanding Health Literacy Knowledge, Experience, and Intentions Among Healthcare Professionals

3:35 PM – 3:55 PM

MASTER'S

At the individual level, low health literacy (HL) is associated with poor chronic disease management and disproportionately impacts rural populations. Healthcare professionals (HCPs), both clinical and non-clinical staff (e.g., MD, PA, RN, CHW), are responsible for delivering health education. HCPs' knowledge, experience, and intention to implement HL strategies, such as using plain language and confirming patient understanding, directly influence patient outcomes and healthcare delivery effectiveness. Although HL Universal Precautions exist, knowledge gaps remain due to limited training, competing organizational priorities, and workplace time constraints. In regions with limited healthcare infrastructure, such as rural border counties, these gaps may compromise patient understanding and self-management of chronic conditions. Strengthening HCP capacity to apply evidence-based HL strategies is essential. Therefore, this needs assessment evaluates HCP HL knowledge, experience, intentions, and current practices in Imperial County, CA.

A descriptive cross-sectional survey targets HCPs employed in county healthcare settings. Data will be collected via an anonymous English or Spanish language survey, distributed through a multi-modal recruitment strategy via regional partnerships. Validated instruments, including the Health Literacy Knowledge and Experience Survey-2 (HLKES-2) and the Health Literacy Strategies Behavioral Intention Questionnaire (HLSBI), will be used with researcher-developed items to assess HL knowledge, experience, behavioral intentions, current practices, institutional processes, and demographics. Planned analyses include descriptive statistics, reliability testing, group comparisons, correlations, and regression modeling.

Findings will inform institutional processes for designing, selecting, and delivering health education materials across county healthcare settings. Ultimately, this work aims to enhance provider communication and improve patient understanding, engagement, and health outcomes in underserved communities.

ORAL PRESENTATION

Speaker

Candace Juhala

Lead Presenter | D - 11

Franchise Capitalism and The Undermining of Worker Power

3:55 PM – 4:15 PM

MASTER'S

In California's fast-food industry the battle over a $20 wage became a struggle over who truly governs the modern workplace: workers or corporations. Based on multi-method research into California's fast-food industry, this research examines how corporate influence and state regulation shape the lives of low-wage service workers in the wake of Assembly Bills 257 and 1228. Drawing from interviews with fast-food workers, policy analysis, Bureau of Labor Statistics data, and content analysis of Fast Food Council meetings and public records, this project investigates how an experiment in sectoral labor governance was restructured under corporate mobilization. AB 257, known as the Fast Food Accountability and Standards Recovery Act, sought to create a worker-inclusive Fast Food Council empowered to set statewide standards on wages, health, and safety. Yet following an industry-led campaign by the Save Our Local Restaurants coalition and other organized franchises, the bill was rewritten into AB 1228, limiting council authority, removing franchisor liability, and converting worker representation into administrative oversight. By situating these developments within theories of franchise capitalism, state capture, and alt-labor, this thesis argues that the rollback of AB 257 reveals how corporations can reconstitute democratic labor reforms to maintain control over precarious workers. Ultimately, this research brings together how policy, power, and resistance interact in the struggle to define economic justice within California's service economy.

ORAL PRESENTATION

Speaker

Jerry Paras

Lead Presenter | D - 11

Cultural Action/Inaction: How Communities Choose to Understand Addiction and How Mothers Show Love

4:15 PM – 4:35 PM

MASTER'S

Drug addiction is a problem that affects all communities, all countries, and all people in one way or another. But how might our culture impact how we address addiction within our own family units and within our own communities. In this exploration, I visited Peru to see how local Andean communities see and understand addiction and drug addicts. A very specific incident of finding a dead man on the street shaped how I continued this research in Peru. Addicts say they feel despair and helplessness and find hope through God, whereas local communities who are extremely religious and cultural act dismissively or are apathetic and lack real empathy. This research aims to fund new understandings of Latin American culture to help the addict and the families of the addict and overall the communities impacted by drugs and drug addiction

ORAL PRESENTATION

Speaker

Julio Rodriguez

Lead Presenter | D - 11

Credit Access and the Survival of Small and Immigrant-Run Food Retailers in San Diego

4:35 PM – 4:55 PM

DOCTORAL

Small and independent food retailers are vital to community food security, yet they face persistent barriers to survival and growth, and are often excluded from food access policies that support underserved communities. This presentation investigates disparities in access to credit among food retailers in San Diego, where chain supermarkets coexist alongside smaller grocery and convenience stores disproportionately owned and operated by immigrants. Focusing on the Paycheck Protection Program (PPP) enacted by the federal government during the COVID pandemic, the study examines the program's effectiveness and equity.

The study employs a mixed methods design, including mapping (ArcGIS), statistical analysis, data visualization (Python), and in-depth interviews. It centers on three questions: (1) How do the characteristics and location of food retail businesses in San Diego reflect broader historical and structural inequalities in the city's food system? (2) How were PPP loans allocated across this uneven landscape, and what does this distribution reveal about access to credit in marginalized communities? and (3) What do geographic patterns of business closures during the pandemic highlight about the effectiveness of these loans and generally about the intersections of race, class, and policy in shaping urban food insecurity?

In addition to presenting findings, the presentation highlights the research process and efforts to engage undergraduate students in data collection and analysis. The study contributes to debates in urban geography, financial equity, and community food security by foregrounding the resilience of immigrant-owned food retailers and offering insights into building a more equitable and durable infrastructure of community food access.

ORAL PRESENTATION

Speaker

V **Victoria Joya Euceda**
Lead Presenter | D - 11

D - 2: Biological and Agricultural Sciences (G) 3

3:00 PM – 5:00 PM | Location: State Suite

GRADUATE

ORAL PRESENTATION

Speakers

A **Adam Oliphant**
Lead Presenter | D - 2

C **Clarissa Savko**
Lead Presenter | D - 2

Kavi Gonur
PhD Student | Capelson Lab

S **Samantha Shinder**
Lead Presenter | D - 2

T **Tram Nguyen**
Lead Presenter | D - 2

Decoupling Water, Vegetation, and Economic Outcomes in an Agricultural Conservation Program

3:15 PM – 3:35 PM

DOCTORAL

Agriculture is the largest anthropogenic water user in the Western US. Agricultural water conservation programs in major irrigation districts like the Imperial Valley (IV) are essential for maintaining access to the overallocated Colorado River.

This study asks: Has the IV maintained agricultural productivity despite reduced water delivery caused by the 2003 Quantification Settlement Agreement (QSA)? This was answered by a time series (2001-2024) analysis of four datasets: 1. hydrologic water-balance for net consumptive use (evapotranspiration, or ET); 2. satellite-derived ET from OpenET; 3. satellite collected normalized difference vegetation index (NDVI) to assess vegetation health and coverage; and 4. agricultural production and inflation-adjusted and economic value from Imperial County Crop Reports. These enable a direct comparison between hydrologic inputs, crop response, management decisions, and economic output.

Total water consumption declined from 2.1 million acre-feet (MAF) in 2001 to 1.6 MAF in 2024, a reduction roughly equals San Diego County's annual water demand. Early efficiency gains came from the fallowing program, while later gains were from the On-Farm Efficiency Conservation Program. OpenET declined from 2001 to 2024 but by a lower percentage than ET calculated from the water balance, while NDVI remained relatively stable. This divergence suggests that irrigation efficiency improved without large losses in acreage under production. Over the same period, inflation-adjusted Gross Value of Production (GVP) increased from 750 million in 2021 to 1.1 billion in 2024. Crop reports indicate this was driven by rising commodity prices and modest increases in high value crops like vegetables and melons.

Overall, the QSA has succeeded in its goal of reducing delivered water to the IV through reductions in consumptive water use and drainage to the Salton Sea, increasing water availability for San Diego and Coachella while maintaining agricultural productivity. Based on this analysis, further efficiency gains in the IV may still be achievable.

ORAL PRESENTATION

Speakers

A **Adam Oliphant**
Lead Presenter | D - 2

C **Cassidy White**
Co-Presenter | D - 2

Prenatal E-Cigarette Exposure: Consequences for the Cardiopulmonary System

3:35 PM – 3:55 PM

DOCTORAL

Electronic cigarette use among adolescents is becoming increasingly popular as sleek designs, candy-like flavors, and marketing are specifically tailored to attract the younger demographic. E-cigs were originally intended for the purpose of smoking cessation but are now being adopted as an introduction to nicotine for young people who are not aware of the risks associated with long-term use. E-cigs containing THC are also becoming increasingly popular as a potentially safer and more discrete alternative to combustible cannabis. Aside from the direct health risks to the user, an additional area of concern with less attention is indirect exposure of a developing embryo consequential to vaping during pregnancy. Prenatal exposure to tobacco smoke is linked to increased risk for congenital heart defects, bronchitis, and asthma. In comparison, the risks associated with prenatal nicotine exposure in the absence of tobacco combustion are poorly understood. The existing literature shows the effects of prenatal exposure to purified nicotine administered via injection which has little relevance to human behavior in which nicotine exposure occurs via smoking or vaping. This issue can be experimentally addressed by exposing pregnant female mice and rats to nicotine and/or THC via inhalation. The overall goal of this proposal is to characterize cardiopulmonary structural, cellular, and molecular damage resulting from prenatal exposure to e-cigs with and without nicotine and/or THC in both mouse and rat models. Preliminary histological results show increased collagen deposition in the hearts of postnatal day (PD) 14 and PD 31 rats prenatally exposed to nicotine as well as nicotine with THC. Similar findings of increased collagen content in the hearts of PD21 mice prenatally exposed to nicotine were also observed. Future analysis includes establishing a time course for progression of fibrosis throughout multiple postnatal time points with a focus on sex-dependent differences.

ORAL PRESENTATION

Speaker

C **Clarissa Savko**
Lead Presenter | D - 2

Investigating the Megator-dependent dosage compensation repressive pathway

3:55 PM – 4:15 PM

DOCTORAL

Dosage compensation is a process by which one sex of a gonochoristic organism equalizes sex chromosome expression to match the other. The epigenetic mechanism utilized by Drosophila melanogaster males remains incompletely understood. The male-specific lethal (MSL) complex binds to most of the single X chromosome, resulting in its two-fold upregulation to match the female's two X chromosomes. However, how this precise level of upregulation is maintained remains unclear. Our previous research identified the nuclear pore protein Megator (Mtor, Tpr in mammals), a component of the nuclear pore basket, as a factor involved in maintaining this transcriptional precision. Depletion of Mtor resulted in aberrant hyperactivation of the male X chromosome.

My research expanded on this discovery through two aims. First, an RT-qPCR screen identified co-functioning partners of Mtor that similarly regulate this pathway. RNAi knockdowns of Su(Var)3-3 and Rrp6 caused significant increases in X-linked dosage compensation gene expression, classifying them as putative "hits." Xmas2 was also identified as a partial hit. RNA-sequencing of Su(Var)3-3 and Rrp6 knockdowns will further assess genome-wide transcriptional effects and clarify whether histone demethylases and the RNA processing exosome complex modulate the restriction mechanism controlling male X activation.

Second, analysis of histone marks in Mtor and Su(Var)3-3 knockdowns revealed decreased H3K9Me2 signal at both chromocenters and chromosome arms, consistent with Su(Var)3-3's role in promoting heterochromatin formation. H3K4Me1 levels rose in Su(Var)3-3 KDs but decreased in Mtor KDs, while H3K27Me3 increased in both. While the precise mechanism remains under investigation, these results implicate histone methylation and exosome function in fine-tuning dosage compensation and provide broader insight into Mtor's epigenetic role in development.

ORAL PRESENTATION

Speaker

Kavi Gonur

PhD Student | Capelson Lab

Persistent Organic Pollutants in Mekong River Irrawaddy Dolphins (Orcaella brevirostris)

4:15 PM – 4:35 PM

DOCTORAL

Persistent organic pollutants (POPs) biomagnify and bioaccumulate in aquatic ecosystems, threatening environmental and human health. This project investigates POP exposure in the critically endangered Mekong River Irrawaddy dolphin (Orcaella brevirostris), an apex predator and sentinel species. With fewer than 100 individuals left and high calf mortality, this population is at risk of extinction. While the cause of calf deaths is unknown, contaminant exposure may play a role. Blubber samples from nine dead stranded animals collected by the World Wildlife Fund (WWF) – Cambodia research group were analyzed using a nontargeted analysis to identify toxic compounds. Cambodia's reliance on farming and agriculture using harmful pesticides and wartime land exposure to defoliants and dioxins increases contamination risks. Analyses revealed multiple halogenated organic compounds, such as polychlorinated biphenyls (PCBs), dichlorodiphenyltrichloroethanes (DDTs), mirex-related chemicals, and polybrominated diphenyl ethers (PBDEs)—POPs from industrial and agricultural activities. Natural compounds including methoxy brominated diphenyl ethers (MeO-BDEs) and 1'-methyl-1,2'-bipyrroles (MBPs) were also detected. Additionally, less-studied compounds such as tris(4−chlorophenyl)methane (TCPM) and its metabolite, tris(4−chlorophenyl)methanol (TCPMOH) were detected, similar to California marine mammals. Notably, compounds absent from our previous studies were observed, including methoxy chlorinated diphenyl ethers (MeO-CDEs), and oxadiazon, a likely carcinogenic herbicide linked to developmental toxicity. This is one of the first documentations of oxadiazon in marine mammals. Many unknown compounds were also found, underscoring the importance of nontargeted analytical approach. These findings illustrate regional contaminant variations and the need for pollution control, monitoring, research, and policy intervention. Understanding chemical burdens in Irrawaddy dolphins informs conservation efforts and human health risks, as seafood is a predominant food source for local communities.

ORAL PRESENTATION

Speaker

Samantha Shinder

Lead Presenter | D - 2

Factors Required for Nuclear Pore Complex Rejuvenation during Drosophila Oogenesis

4:35 PM – 4:55 PM

MASTER'S

The nucleus is considered as a control center of a eukaryotic cell as it contains cellular genomes. Embedded in the nuclear envelope are nuclear pore complexes (NPCs), which function as a selective barrier to regulate the nucleocytoplasmic transport, gene expression, and cellular signaling. NPC is composed of around 30 different highly-conserved nucleoporins (NUPs). Together with nuclear lamina and nuclear matrix, NUPs help maintain the shape and integrity of nuclei and organize the genetic material. Dysfunction of NPCs and mutations in NUPs are linked to neurodegenerative and cardiovascular diseases, and to cancer. Despite their importance in these aging-associated diseases, little is known about how NPCs and NUPs are

maintained and turned over. Learning such mechanisms of NPC rejuvenation can help in prevention of aging-associated disease, particularly neurodegenerative conditions. Our research investigated mechanisms of NPC turn-over using the model of Drosophila oogenesis. Oogenesis has built-in mechanisms for rejuvenation of cellular components because it must generate an oocyte that will become the next generation. We and others have identified striking NPC depletion during the early stage of Drosophila oogenesis, marked with an early differentiation marker Bam. This depletion, which we detect by immunofluorescence co-staining and microscopy imaging of NPCs and Bam, is indicative of active removal of

NPCs as the initial step of their turn-over. Using oogenesis-specific RNA interference, we knocked down candidate genes to determine which of them can rescue the observed NPC depletion and thus regulate NPC turn-over. Previous research has shown that the ESCRT-III/VPS4 complex contributes to NPC turn-over in yeast and in Drosophila models of ALS/FTD. In agreement with this work, we identified some specific components of ESCRT-III/VPS4, downregulation of which can rescue NPC levels. In the future, we plan to knock down these genes in Drosophila brain tissues to decipher mechanisms that regulate NPC rejuvenation and apply this to other disease models.

ORAL PRESENTATION

Speaker

T **Tram Nguyen**
Lead Presenter | D - 2

D - 3: Physical and Mathematical Sciences (G) 3

3:00 PM – 5:00 PM | Location: Lipinsky Hospitality Suite (SSW 1608)

GRADUATE

ORAL PRESENTATION

Speakers

A **Antonio Cobarrubia**
Lead Presenter | D - 3

D **Dina Sarsam**
Lead Presenter | D - 3

E **Edgar Castillo**
Lead Presenter | D - 3

L **Lauren Campbell**
Lead Presenter | D - 3

S **Sebastian Griego**
Lead Presenter | D - 3

Data-driven optothermal engineering of TMD moiré superlattices

3:15 PM – 3:35 PM

DOCTORAL

Quantum emitters in transition metal dichalcogenides (TMDs) have emerged as promising candidates for quantum photonic devices, with increasing progress toward room-temperature operation. In TMD moiré superlattices, however, single-photon emission is strongly influenced by local temperature, making a detailed understanding of optothermal behavior essential. Here, we systematically investigate the thermal properties of TMD homostructures (MoS_2 and WS_2) and MoS_2/WS_2 heterostructures using Raman spectroscopy. We reveal distinct thermal responses across homo- and heterostructured configurations, highlighting the role of interlayer coupling in heat dissipation. To further guide the optothermal design of TMD stacked structures, we develop a deep-learning model capable of predicting localized phonon modes directly from Raman spectra. By integrating experimental analysis with data-driven modeling, our approach enables enhanced optimization of structural and thermal parameters in TMD moiré superlattices, providing a pathway toward improved control of quantum emission in layered two-dimensional materials.

ORAL PRESENTATION

Speaker

A **Antonio Cobarrubia**
Lead Presenter | D - 3

Mixed Substrate Utilization: Case study of Methylotuvimicrobium alcaliphilum 20ZR

3:35 PM – 3:55 PM

MASTER'S

Methanotrophic bacteria are a specialized group of microorganisms that utilize methane as their primary carbon and energy source. Methanotrophs are widely distributed across diverse environments, including extreme ecosystems. Beyond their environmental role, methanotrophs possess significant biotechnological potential because they can convert methane into valuable bioproducts such as biobening plastic, methanol, biofuels, and food-grade biomass. Recent studies demonstrate that methanotrophs possess remarkable metabolic flexibility in response to environmental changes and may co-utilize other simple carbon compounds, such as formate (C1) and acetate (C2). Co-feeding reduced C_1/C_2 substrates has been proposed as a strategy to enhance growth, CCE, and productivity. However, such approaches may also introduce inefficiencies, including redox imbalance and increased CO_2 release (Rui et al., 2024). Understanding these trade-offs is essential for designing optimized methanotroph-based bioprocesses. In my work, I use metabolic modeling as a systems-level framework for investigating these dynamics in Methylotuvimicrobium alcaliphilum 20ZR, a model methanotrophic microbe. The genome-scale metabolic model simulations suggest that co-feeding of methanol-grown cells with additional reduced C_1 and C_2 substrates can increase biomass output relative to single-substrate conditions but reduces carbon conversion efficiency due to increased CO_2 release. The initial data suggest that methanol–acetate co-feeding offers the best balance between biomass production and carbon efficiency, while format-containing mixtures promote carbon overflow.

ORAL PRESENTATION

Speaker

Dina Sarsam

Lead Presenter | D - 3

Chiral Layered Photocatalysis for Carbon Dioxide Reduction and Plastic Waste Decomposition

3:55 PM – 4:15 PM

MASTER'S

Photocatalysis is a promising avenue for renewable energy conversion using light energy to chemically transform reactants into more valuable energy resources. The benefits of photocatalysis include operating at mild conditions, sustainability, and low carbon footprint. Currently, considerable effort has been made to reduce the CO2, a greenhouse gas, present in the atmosphere. In this work photocatalysis will be carried out by utilizing, Cadmium Sulfide (CdS) as a photocatalyst, to reduce carbon dioxide (CO2) into carbon monoxide (CO). The CdS photocatalyst enables a CO production rate of 77.17 µmol*g-1*h-1 under 1 sun irradiation. Although CdS is a viable catalyst due to its suitable band gap of 2.4eV as a visible light absorber, it still suffers from a few shortcomings, such as fast electron-hole recombination and photo corrosion. To improve the performance of the catalyst and potentially mitigate the drawbacks, a chiral molecule layer was added to the surface of the CdS to take advantage of the Chiral Induced Spin Selectivity (CISS) effect. After the inclusion of the chiral layer the performance of the CO production rate increases to 198.07 µmol*g-1*h-1. Characterization methods such as Fourier Transformer Infrared Spectroscopy, Circular Dichroism, and X-Ray Photoelectron Spectroscopy were utilized to prove the presence of the chiral layer on the surface of the CdS. Future work includes conducting cycling experiments to study the stability of the catalyst once the chiral layer is added to the surface. Also, X-Ray diffraction measurements will be taken to investigate the structure of the catalysts with and without the presence of a chiral molecular layer. In addition, CdS can also be used in plastic waste decomposition. Preliminary results indicate that the use of the chiral layered CdS can convert Lactic Acid, a monomer of Polylactic Acid (PLA) into more valuable products such as Acetamide and Acetic Acid.

ORAL PRESENTATION

Speaker

Edgar Castillo

Lead Presenter | D - 3

Evaluating the Purity of Engineered Protein Fibers Generated from a Bacterial Surface Display

4:15 PM – 4:35 PM

MASTER'S

Spider silk is a naturally occurring biomaterial renowned for its exceptional mechanical properties, including high tensile strength, elasticity, and biodegradability. These traits make it an ideal candidate for applications in biomedical engineering, tissue scaffolding, filtration, and advanced materials. However, to date large-scale spider silk production within research laboratories remains challenging. In the Love Lab, we explore alternative strategies for fiber production through protein engineering. Our approach utilizes a bacterial surface display system to express different fibrous proteins that have been fused with the fluorescent protein mCherry. The resulting proteins are biochemically purified and then denatured using guanidine hydrochloride prior to fiber extrusion. The unfolded proteins are extruded into a refolding bath, which induces the protein suspension to form fibers. While we have successfully produced fibers without any form of column chromatography, we now seek to validate the purity of our proteins, their different properties, and importantly their role in fiber formation. To this end, I am using size exclusion chromatography coupled with multi-angle light scattering (SEC-MALS) to assess molecular weight, purity, and the potential need for other forms of chromatographic purification. This work will help determine whether our current protein production/purification workflow is sufficient or if additional purification steps could enhance fiber quality. Ultimately, this study contributes to the broader effort of creating scalable, tunable protein-based fibers for advanced material applications.

ORAL PRESENTATION

Speaker

Lauren Campbell

Lead Presenter | D - 3

Predicting HIV Resting Cell Infection Using Novel Math-Model Informed Neural Networks (MINN)

4:35 PM – 4:55 PM

MASTER'S

Despite tremendous progress on the development of antiretroviral therapy (ART), there is no cure for HIV, primarily due to the establishment of latently infected cells, known as HIV resting cells. In this study, we develop a Math-model Informed Neural Network (MINN) to describe the dynamics of HIV Resting Cell Infection (RCI) and validate our model using 27 HIV infected patients under ART. The MINN allows us to recover clinically reasonable parameters, which we then use to generate synthetic patient data. Carefully generated synthetic cohorts serve as training data for a secondary neural network we develop to predict RCI from standard viral load trajectories. Our results demonstrate that this novel framework accurately predicts RCI and can be used to design a patient-specific treatment protocol to control RCI infection.

ORAL PRESENTATION

Speaker

S **Sebastian Griego**
Lead Presenter | D - 3

D - 4: Humanities, History, Literature, & Philosophy (G) 3

3:00 PM – 5:00 PM | Location: Park Boulevard

GRADUATE

ORAL PRESENTATION

Speakers

F **Ferdinando Scappaticci**
Lead Presenter | D - 4

H **Hamsa AlMashhadani**
Linguistics Tutor | San Diego State University

J **Jeffrey Abrogena**
Lead Presenter | D - 4

L **Lauren Gomez**
Lead Presenter | D - 4

N **Nakai Contreras**
Lead Presenter | D - 4

The Sedition Act of 1798: Freedoms and Fights among the Founding Fathers

3:15 PM – 3:35 PM

MASTER'S

The First Amendment to the United States Constitution famously includes the rights of freedom of speech and freedom of the press. In 1798, just a decade after the Constitution's ratification, President John Adams signed the Sedition Act of 1798 into law. The Act was criticized by sitting Vice President Thomas Jefferson and his fellow Democratic-Republicans due to its language prohibiting any person to "write, print, utter or publish…any false, scandalous and malicious writing or writings against the government of the United States…with intent to defame the said government" or to bring it into "disrepute". Adams and congressional Federalists defended the law as necessary, fearing foreign influence from the French revolution overseas. The Act became the center of debate in the fierce election of 1800 between John Adams and Thomas Jefferson, serving as a key point of dispute between prominent Founding Fathers.

What does the debate over the Sedition Act tell us about early America and the founders? How did the early American press portray the Act to the public? My thesis delves into the historical record to find that while both the Founding Fathers and everyday early Americans held a variety of different feelings towards the Sedition Act, those on both sides of the debate attempted to make their arguments for and against the Act within the limits of the First Amendment itself, rather than casting the First Amendment aside. While modern historical research has looked back upon the Act from today's perspective, I hope to add to the historical narrative by telling the story of the Sedition Act from the perspective of the founders and early Americans themselves. Through letters, early American newspaper articles, and writings of the founders, my research aims to provide a holistic historical analysis of the Sedition Act that encompasses its historical, popular culture, legal, and personal impacts on early America and the lives of the Founding Fathers. This vibrant debate gives a glimpse into how even the founders themselves sometimes disagreed on pivotal topics.

ORAL PRESENTATION

Speaker

F **Ferdinando Scappaticci**
Lead Presenter | D - 4

An Exploratory Review of Arabic Dual Emergence in L2 Learners under the Processability Theory

3:35 PM – 3:55 PM

MASTER'S

This paper examines whether Processability Theory (PT) can predict the emergence and development of dual morphology in Arabic as a second language (L2). PT posits that grammatical development follows a universal hierarchy of processing procedures, progressing from lexical access to phrasal, interphrasal, and clausal information unification. Arabic provides a particularly strong testing ground for PT due to its rich inflectional system and complex agreement patterns, including the dual form, which requires coordinated marking across nouns, adjectives, and verbs. Despite this, PT-based research on Arabic—especially on dual morphology—remains limited and methodologically heterogeneous.

The study presents an exploratory review of empirical research on Arabic morphosyntactic development, focusing on number marking and agreement in both first and second language acquisition. Findings from studies on noun–adjective agreement, subject–verb agreement, and dual marking are synthesized and interpreted through the lens of PT's processability hierarchy. Observed developmental patterns are mapped onto stages ranging from lexical expressions of duality to phrasal and sentence-level agreement, including contexts involving subordinate clauses.

While several studies provide indirect support for PT by showing a gradual progression from less complex to more complex agreement structures, others report patterns that appear to challenge the predicted hierarchy. This paper argues that many such inconsistencies are likely attributable to methodological limitations, including small sample sizes, inconsistent criteria for emergence, and reliance on production-only data. The paper concludes that PT remains a promising framework for understanding Arabic L2 morphosyntactic development, and PT predictions concerning dual morphology cannot be adequately evaluated without more rigorous, PT-specific empirical research. Establishing a clear developmental trajectory for the Arabic dual is crucial for testing processing-based theories and advancing research on Arabic second language acquisition.

ORAL PRESENTATION

Speaker

H

Hamsa AlMashhadani

Linguistics Tutor | San Diego State University

In Memoriam: Epigraphic & Numismatic Commemoration of Military Service in Ancient Rome

3:55 PM – 4:15 PM

MASTER'S

Scholars debate the nature of modern war memorials, such as the Vietnam Veterans Memorial in Washington D.C. and the Tomb of the Unknown Soldier in Arlington, VA. The ancient Romans commemorated the service and the lives of veterans' through coins and funerary inscriptions. Roman coins depicted monuments to war, as well as memorializing specific military campaigns (with legends such as Parthia Capta, Judea Capta, Aegypta Capta) and specific legions (such as Legio V Macedonica and Legio VIII Augusta). The ruins of Trajan's funerary altar as well as the monument known as the Tropaeum Traiani (Trajan's Trophy), both located at Adamclisi in modern-day Romania, complement the interpretation of how Roman coins commemorate soldiers and war. Private tombstones – often commissioned by friends and/or family members, local legionary veterans groups of which the deceased were members, or even the deceased themselves – personalize the top-down model of government-issued memorialization seen on coins and public monuments. Though separated by centuries and cultural/linguistic differences, the sentiments expressed in both ancient and modern commemoration of war and veterans share more similarities than differences. Remembrance of war and commemoration of the soldiers who fought and died, whether having died while fighting in service, or later in peacetime as retired veterans, is part of the human experience. This remains as true today as it was in ancient times.

ORAL PRESENTATION

Speaker

J

Jeffrey Abrogena

Lead Presenter | D - 4

The Degradation of the Land and the Worker: The Story of San Quintín

4:15 PM – 4:35 PM

MASTER'S

This presentation will investigate the valley of San Quintín, Baja California, Mexico, and its rapid development as an industrial-based agricultural center for export crops. The investigation will review the history of agricultural growth, the impact of the NAFTA and USMCA trade agreements, and their impact on farmworkers. San Quintín will be the focus of the case study as a framework for the impact of seasonal labor in Mexico and its adoption of Neoliberal practices. San Quintín has transformed from an arid and rural fishing village to the center of berry production for the country. This research will also unpack the historical linkages of continuous Indigenous exploitation through the lens of farmworking. These Indigenous laborers are central to these neoliberal trade agreements through the current tertiary system of abuse of the Indigenous workers as a part of the rapidly growing agricultural efforts in the region. As San Quintín becomes further enveloped in the neoliberal project, it has continued to be a testing ground for the continuous exploitation of farm workers and the exploitation of the environment for the benefit of American and Canadian companies that own the farms that produce these cash crops.

ORAL PRESENTATION

Speaker

L

Lauren Gomez

Lead Presenter | D - 4

The Struggle for Social Equality & the Political legacy of American Revolutionaries

4:35 PM – 4:55 PM

MASTER'S

My project explores the history of the progressive and revolutionary struggle for the principle of equality by American revolutionaries in the first and second American revolutions, through a critique of the ahistorical interpretation of the two American Revolutions put forth by the New York Times, The 1619 Project, authored by Nikole Hannah Jones. Centered on a defense of the revolutionary principle of equality, as derived from the political traditions of the enlightenment period and fought for by revolutionaries such as Abraham Lincoln and Fredrick Douglass, I argue this principle must serve as a standard maxim for a democratic society that should be constantly approximated, defended, and expanded. I posit that the expansion of this principle of equality following the civil war necessarily entails a fervent defense of the fundamental democratic social rights of the masses, and an arduous struggle for the elimination of all remaining social inequalities among the masses– most centrally and decisively, the social inequality of class. The 1619 project reinterprets American history through a biologically deterministic and racialized conception of history which posits that the two revolutions were born from the endemic nature of white supremacism in America. Consequently, the 1619 project's historical interpretation of the two revolutions denigrates the struggle waged by American revolutionaries for the principle of equality and omits the role and implications of social class relations and forces in America's Founding and its Civil War. The work presents a historical materialist conception of American History that does not discount or omit the origins, development, and role of racism in the American Revolutions, but instead predominantly clarifies the central role of the economic forces and social relations that were the driving catalyst in historical development of the two revolutions, and identifies the historical and contemporary importance of the revolutionary and progressive struggles despite their historical limitations.

ORAL PRESENTATION

Speaker

N **Nakai Contreras**
Lead Presenter | D - 4

D - 5: Engineering and Computer Science (G) 3

3:00 PM – 5:00 PM | Location: Pride Suite

GRADUATE

ORAL PRESENTATION

Speakers

J **Jessica Munoz**
Lead Presenter | D - 5

P **Paulette Suro**
Bioengineering Masters Student | San Diego State University

R **Ramya Chandrasekaran**
Lead Presenter | D - 5

Sophia Benkirane
Lead Presenter | D - 5

Brain-on-a-Chip: Electromagnetic Assisted Drug Delivery Across Microfluidic Blood–Brain Barrier

3:15 PM – 3:35 PM

MASTER'S

The blood-brain barrier (BBB) is a highly selective interface that regulates molecular transport between the bloodstream and the brain, ensuring proper neuronal function and protecting the central nervous system from toxins and pathogens. Despite these benefits, its selectivity poses a major challenge for drug delivery, as most therapeutic compounds fail to cross the BBB in sufficient quantities. Traditional models, including animal studies and 2D cell cultures, lack the structural complexity and physiological relevance needed to accurately simulate human BBB function. To address these limitations, a BBB-on-a-chip system can more closely replicate physiological barrier behavior. In this work, a microfluidic BBB-on-a-chip is fabricated via soft lithography and incorporates a polycarbonate membrane that supports a confluent endothelial layer while enabling precise control over channel geometry, flow, and microenvironment to more accurately approximate in vivo physiology. Building on recent developments in magnetic targeting and iontophoresis, the model integrates both magnetic and electric fields to evaluate field-assisted drug-transport strategies and their effects on BBB permeability. Drug-loaded magnetic nanoparticles (MNPs) and a low-voltage electric field will be tested using ibuprofen, a negatively charged, readily accessible model drug. The objective is to design and validate a BBB-on-a-chip that recreates key features of human BBB function while incorporating glassy carbon electrodes embedded in the PDMS channels for electric-field application and a neodymium magnet for magnetic control, enabling enhanced transport across the barrier. Comparative experiments will employ a range of stimulation conditions and analytical methods to determine the most effective drug-transport strategy. If effective, these field-assisted strategies may reduce the need to engineer drugs for BBB penetration and improve therapeutic efficacy, supported by a scalable platform for studying BBB transport and advancing neuropharmacology.

ORAL PRESENTATION

Speakers

J **Jessica Munoz**
Lead Presenter | D - 5

S **Sophia Gonzalez**
Co-Presenter | D - 5

Redox Amplification in 3D Glassy Carbon Interdigitated Electrode Arrays for Glucose Sensing

3:35 PM – 3:55 PM

MASTER'S

Continuous glucose monitoring (CGM) technologies are often invasive, relying on interstitial fluid sampling that can cause discomfort and limit long-term usability. This research presents a microelectromechanical system (MEMS) biosensor designed for non-invasive glucose detection through sweat. The device enhances sensitivity at low analyte concentrations using three-dimensional interdigitated electrode arrays (3D-IDEAs) to amplify redox reactions. The electrodes feature a novel radial design with increased surface area to promote redox cycling. Glassy carbon, a conductive and biocompatible material, is integrated into a flexible polyimide substrate via UV photolithography to support wearable applications.

Following fabrication optimization, electrode functionality was characterized through cyclic voltammetry (CV) and electrochemical impedance spectroscopy (EIS) in phosphate-buffered saline (PBS) and potassium ferrocyanide solutions to evaluate baseline behavior, redox activity, and signal amplification. Variations in CV peak current and peak separation were analyzed as a function of electrode height, which was controlled by systematically varying photoresist thickness during fabrication.

Following baseline characterization, future work will focus on functionalizing the electrodes with a glucose oxidase enzyme layer to enable selective glucose detection. Enzymatic activity will be evaluated through CV measurements in solutions containing glucose, assessing the sensor's responsiveness to varying glucose concentrations. With continued refinement, this work establishes a foundation for continuous, non-invasive glucose monitoring that improves both patient comfort and clinical accessibility.

ORAL PRESENTATION

Speakers

P

Paulette Suro

Bioengineering Masters Student | San Diego State University

S

Senay Yilma

Co-Presenter | D - 5

Modeling post-fire surface and subsurface hydrology for various land use and land cover conditions

3:55 PM – 4:15 PM

MASTER'S

Wildfire changes the physical properties of soil and the relative partitioning between infiltration, runoff, and subsurface storage. This research contributes to understanding changes in surface and subsurface flows, soil characteristics, and water quality after wildfires. We conducted multiple rainfall-runoff experiments on three experimental soil columns and hillslopes that represent burned conditions in urban, riparian, and chaparral areas in the San Diego, California region. Hydrophobicity and hydraulic conductivity of the burned soils were measured before and after simulated rainfall to estimate the baseline soil properties and understand changes in soil characteristics. Soil water volume content (VWC%) and soil matric potential were measured after rainfall at different depths of the columns and hillslopes to measure changes in hydraulic conductivity within the depth profiles and see if the hydrophobic nature of the soil surface changes under precipitation. Infiltrated water and runoff were collected after each rainfall-runoff event and analyzed for dissolved organic carbon (DOC) and total dissolved nitrogen (TDN) to understand how organic matter is transported in soil, the potential variation between different environments, and how concentrations change through consecutive rainfall events. We parametrized MODFLOW6 with our experimental measurements to predict groundwater flow within burned landscapes of the riparian and chaparral conditions for a three-year period post fire. Preliminary results from this work shows that all the heat-treated soils are moderately hydrophobic through a water droplet test, and soil column tests done with the post-fire urban soils show the hydrophobic layer of the column degrading over the rain events, with increasing VWC% and soil matric potential measurements over time. Results of this work have implications for managing landscapes, water quality, and groundwater in watersheds prone to fire.

ORAL PRESENTATION

Speaker

R

Ramya Chandrasekaran

Lead Presenter | D - 5

Fiber-reinforced Polyurea Foams for Next-Gen Protective Structures

4:15 PM – 4:35 PM

MASTER'S

Elastomeric polyurea foams are emerging as critical components in protective material systems, demonstrating significant potential for impact mitigation across a wide range of strain rates in both civilian and military applications. While effective, their mechanical performance and energy absorption can be further optimized through strategic reinforcement. This study explores the impact of incorporating short fibers on the efficacy of fiber-reinforced polyurea foams. The neat polyurea foam microcellular structure is characterized by hierarchical semi-closed cells, leading to enhanced impact performance across a broad range of loading and operating conditions. The addition of short, advanced fibers aims to fundamentally enhance the mechanical and structural stiffness, as well as the dynamic energy dissipation, of the foam, thereby extending its viable application domain into more demanding high-strain-rate scenarios. Impact efficacy is initially forecasted based on quasi-static loading conditions, then extended using a combination of a fully instrumented drop tower and a small-scale shock tube to assess performance across low, moderate, and high impact velocities. Irrespective of the strain rate, all mechanical testing is supplemented with full-field, high-resolution, and high-speed digital image correlation to resolve the kinematics of deformation. This investigation examines the interrelationship between the fiber type and the resulting structure-property underpinnings. The outcomes of this research demonstrate the substantial potential of these composite polyurea foams to create advanced, lightweight protective material systems where superior mechanical performance and energy dissipation are paramount.

ORAL PRESENTATION

Speaker

Sophia Benkirane

Lead Presenter | D - 5

D - 6: APIDA Research and Servingness/Sage Partnerships

3:00 PM – 5:00 PM | Location: Metztli

UNDERGRADUATE/GRADUATE

APIDA ORAL PRESENTATION SAGE SPECIAL SESSION

Speakers

Charles Dare

Lead Presenter | D - 6

Jose Segura Figueroa

Lead Presenter | D - 6

Juan Londono Esguerra

Lead Presenter | D - 6

Skye Akimseu-Calderbank

Lead Presenter | D - 6

Teddy Morando

Lead Presenter | D - 6

Seismic factors affecting pre-1980 structures

3:15 PM – 3:35 PM

MASTER'S

This project investigates the correlation between seismic hazards and structural vulnerability of pre-1980 buildings in National City, CA, to support the City in its disaster preparedness planning. Focusing on aging infrastructure within the municipality, the study employs Geographic Information Systems (GIS), remote sensing, and spatial analysis to identify, map, and assess structural vulnerabilities associated with historical construction practices and materials. A core component of the project involves the active participation of student researchers in data collection, field verification, and analytical modeling. The inclusion of Geographic Information Science, City Planning, and Engineering students and faculty, in addition to other areas of study, leads to a multi-faceted approach and analysis of potential hazard areas. These efforts are supported at their core through the creation of a comprehensive geospatial database of building attributes and hazard indicators. To verify the remote-surveyed properties, field surveys were conducted by mixed-discipline student teams using a randomly selected subset of the data. Additionally, the creation of mobile survey tools enables post-disaster response and recovery efforts to collect real-time data from first responders, city staff, and residents. This survey created a comprehensive database of assets that will enable emergency operations staff members to preplan and more rapidly deploy critical assets throughout the region. The integration of academic research, municipal stakeholders, and modern geospatial techniques aims to provide a replicable framework for assessing seismic vulnerability in older built urban environments.

APIDA ORAL PRESENTATION SAGE SPECIAL SESSION

Speaker

Charles Dare

Lead Presenter | D - 6

Reframing the Stars: Ancient Chinese Astronomy and Asian American Scientific Legitimacy.

3:35 PM – 3:55 PM

UNDERGRADUATE

Ancient Chinese astronomy was a sophisticated scientific system that integrated empirical observation, mathematical calculation, calendrical science, and cosmology as early as the Qin dynasty (221–206 BCE). This is evidenced by detailed eclipse records, star maps, and calendrical instruments that demonstrated systematic sky observation comparable in rigor to later Western traditions (Needham 1959; Ma 2023). However, as Western scientific frameworks became globally dominant, historical accounts of science increasingly reframed the contributions of early Chinese astronomers as spiritual, cultural, or philosophical knowledge rather than as part of the scientific canon (Needham 1959; Raj 2007).

This project examines how the marginalization of ancient Chinese astronomy within modern scientific narratives impacts contemporary Asian American understandings of cultural heritage and scientific legitimacy. Building on historical studies of early Chinese astronomy and analyses of how scientific authority is produced and circulated (Raj 2007), this research recounts how Chinese astronomical knowledge was displaced from global scientific canons despite its empirical foundations. The study then extends this analysis to Asian American contexts, exploring how Westernized science education privilege Eurocentric scientific origins while obscuring non-Western contributions.

This project analyzes how Asian American scientific identities are formed within narratives that separate “culture” from “science” (Hall 1990; Lowe 1996). For example, traditional Chinese astronomical systems based on lunisolar calendars and zodiac cycles are often perceived as cultural or spiritual practices rather than in relation to science or their historic roles in observation or prediction (Needham 1959; Raj 2007).

By linking early Chinese contributions to astronomy to present-day issues of representation, legitimacy, and identity, this project situates historical science within modern AANHPI experiences and challenges dominant assumptions about the origins and ownership of scientific knowledge.

APIDA ORAL PRESENTATION SAGE SPECIAL SESSION

Speaker

Jose Segura Figueroa

Lead Presenter | D - 6

Understanding mitochondrial functionality after GAA excision in Friedreich’s Ataxia

3:55 PM – 4:15 PM

UNDERGRADUATE

Friedreich ataxia (FA) is a neurogenerative disorder caused by homozygous GAA expansion mutation in the first intron of frataxin (FXN) gene. FXN is a mitochondrial protein essential for iron homeostasis and energy production, and its deficiency results in mitochondrial iron overload, impaired oxidative phosphorylation and increased oxidative stress. We previously showed complete rescue of neurologic complications of FRDA in YG8R mice with a single, systemic infusion of wild-type hematopoietic stem and progenitor cells (HSPC), and this rescue was mediated by FXN transfer from engrafted HSPC-derived microglia to diseased neurons. We next developed an autologous stem cell transplantation approach using CRISPR/Cas9-mediated excision of GAA repeats in FRDA patients’ CD34+ HSPCs that increased FXN expression and improved mitochondrial functions. In this study, we extend these findings by investigating how HSPC-derived cells engage with FA-affected tissues. To model this, we are using lymphoblastoid cell lines (LCLs) from FA patients of varying GAA repeat lengths and healthy adults as HSPC-representative lines. Average gene editing efficiency in FA LCLs is ~35% , comparable to that of CD34+ HSPCs from patients. Preliminary analysis shows that mitophagy, the selective clearance of dysfunction mitochondria, is restored to control levels in gene edited LCLs and that lysosome numbers normalize accordingly, suggesting recovery of autophagy pathways. Given that cells with impaired autophagy often exocytose damaged mitochondria, our next steps include assessing mitochondrial release and its underlying mechanisms. Collectively, these data will elucidate potential mechanisms of HSPC mediated repair in FA while also demonstrating ways in which HSPC-lineage cells may contribute to disease progression. These findings may illuminate novel therapeutic targets and biomarkers for FA, and more broadly to neurodegenerative diseases at large.

APIDA ORAL PRESENTATION SAGE SPECIAL SESSION

Speaker

Juan Londono Esguerra

Lead Presenter | D - 6

A Cross-Cultural Comparison of Cultural Representation in Romantic Movies

4:15 PM – 4:35 PM

UNDERGRADUATE

While romance is a universal human experience, cultural norms strongly shape how intimacy, emotional expression, and partnership are viewed and represented (Karandashev, 2015). Implicating these cultural expectations of romance within a society includes the way romance is represented in media, specifically film (Ray, 2022). By understanding diverse representations of different cultures through media, we can create a better understanding across different cultural groups (Chen, 2024).

This study examines audiences in the U.S and Japan and how they interpret the representation of romance in films in their country, evaluating how accurately these portrayals reflect cultural understandings of romantic relationships. By comparing U.S. and Japanese perspectives on romantic films, this research examines the conceptualization of “romantic pursuit” and the impact culture plays in these conceptualizations. In addition, the research examines how accurately they are reflected in these films. The study focuses on key components of romantic relationships, including emotional expression, communication, and expectations of partnership, and how these elements are depicted on screen.

Audience interpretations are assessed via qualitative interviews with U.S. and Japanese college students aged 18-24 who self-identify as viewers of U.S. and Japanese romantic films, with an emphasis on Generation Z. This age group is particularly relevant due to its high level of media consumption and exposure to globalized cultural narratives. Interviews explore participants' personal perspectives on romance, their beliefs about romantic relationships, and their perceptions of cultural accuracy in romantic films. By centering audience perspectives rather than individual films, this study aims to better understand how cinematic representations influence cultural expectations of romance across societies.

APIDA ORAL PRESENTATION SAGE SPECIAL SESSION

Speaker

S **Skye Akimseu-Calderbank**
Lead Presenter | D - 6

Gunpla: A Study of the Impacts of a Hobby on STEM Careers

4:35 PM – 4:55 PM

UNDERGRADUATE

This project examines the impact childhood hobbies have on career fields. For example, gundam and model building (i.e. gunpla) may have been a factor in some Asian Americans developing an interest in STEM-related careers. Gundam, a Japanese sci-fi global media franchise, has been airing for over 40 years and has launched a world of spin-offs, merchandise, and more. A popular merchandise is gunpla, which is a model kit where a person can build a scaled down replication of a Gundam suit from complicated building blocks (Hayashi & Yamada, 2017). Gundam is essentially about soldiers using giant mechanical suits to fight in a war. As aforementioned, gundam hobbyists and enthusiasts have constructed replicas of these mechanical suits, a complex system that requires years of experimentation, or trial and error, in addition to the application of STEM principles. Such practice has developed the skills and interest needed to pursue STEM careers.

The hobby of building gundam models helps cultivate interest in STEM by providing hands-on engagement with problem-solving and with attending to details. This project includes a review of existing research and qualitative interviews with Asian American students at SDSU who identify as gunpla enthusiasts. Drawing upon autoethnography (Ellis and Bochner, 2000), this project also examines the researcher’s own experiences with gundam, gunpla, and STEM major. A major claim is that gunpla should be introduced to young audiences in order to jumpstart STEM interests; the project seeks to justify the hobby of gundam and gunpla as a major benefit to filling the nation’s gaps in STEM professionals.

APIDA ORAL PRESENTATION SAGE SPECIAL SESSION

Speaker

T **Teddy Morando**
Lead Presenter | D - 6

D - 7: Humanities, History, Literature, & Philosophy (U/G) 1

3:00 PM – 5:00 PM | Location: Aztlan

UNDERGRADUATE/GRADUATE

ORAL PRESENTATION

Speakers

A **Agustin Resendiz**
Lead Presenter | D - 7

M **McKenna Moock**
Lead Presenter | D - 7

M **Mike Raska**
Lead Presenter | D - 7

The Piano Transcriptions of The Nutcracker

3:15 PM – 3:35 PM

MASTER'S

Tchaikovsky's celebrated ballet The Nutcracker (1892), which includes some of the most recognized melodies in classical music, has inspired a rich and diverse assortment of piano transcriptions, arrangements, paraphrases, and reductions of the original orchestral score. Despite the ballet's immense cultural significance and the many piano adaptations it has subsequently inspired, there has been surprisingly little scholarly attention devoted to uncovering the unique contributions of Nutcracker piano arrangements to the piano literature, their role in shaping compositional approaches to piano transcription of large-scale orchestral works, and their importance in sustaining the cultural relevance of the ballet itself. Broadly speaking, the transcription aims to recreate the original work as accurately as possible while other forms of arrangement serve as a canvas for creative recomposition. In this project I will examine a selection of Nutcracker piano arrangements to highlight the historical evolution of the piano transcription, the diversity of compositional techniques, and the differences in aesthetic priorities. Because The Nutcracker has been transcribed before and after the advent of recording technology, it offers a unique lens through which to examine how fidelity in transcription shifts from a means of providing access to orchestral music to a focus on interpretation as shaped by changing cultural conditions. Through comparative score analysis, I will examine how compositional choices in Nutcracker piano arrangements reveal different conceptions of fidelity to the original orchestral score, especially arrangers' treatment of difficult sections. These analyses also consider how broader aesthetic values, cultures of performance and recordings, and historical trends of pianistic virtuosity may have shaped compositional choices. This project illuminates how piano arrangements of The Nutcracker have transformed the original ballet music from its theatrical context into an entire subculture of autonomous piano music from private performances to public concerts.

ORAL PRESENTATION

Speaker

A **Agustin Resendiz**
Lead Presenter | D - 7

Presentation Withdrawn

3:55 PM – 4:15 PM

UNDERGRADUATE

ORAL PRESENTATION

Speaker

P **Presenter Withdrawn**

AI and Plagiarism: A Review of Pedagogical AI Policy

4:15 PM – 4:35 PM

UNDERGRADUATE

Through our document analysis study, we seek to understand how first-year writing instructors at a large, public R1 university construct AI policies in their syllabi and provide an analysis of these based on our experiences as undergraduate students. As current undergraduate Rhetoric & Writing Studies students at San Diego State University, we are confronted with confounding AI plagiarism policies as a result of non-uniform, university-wide AI integration. Additionally, as current research assistants investigating students' perceptions towards and experiences with AI in the writing setting, we are beginning to ask undergraduates what plagiarism with AI looks like. Though students are able to distinguish clear copy-and-paste habits as plagiarism, there is a fair amount of gray area issued by non-standard AI policies. The divergence in AI policy and subsequent confusion has become our exigence as we work to answer the research question: "How do AI policies differ between instructors and what do these policies reflect about instructor stances around GenAI and plagiarism?"

Situating our work in current literature on writing studies pedagogy and GenAI policies, such as M. McIntyre's "Equitable Writing Classrooms and Programs in the Shadow of AI," we compared the literature to our findings from our document analysis of a randomly selected sample of 30 SDSU syllabi from the second general education writing course in a two course sequence. The inclusion criteria was that each syllabus had to be from the Spring 2024 semester because this was the semester after SDSU partnered with OpenAI, handing undergraduate students a subscription to ChatGPT. We selected the syllabi from this semester because that's when the bulk of those classes were run, finding that only 37% of the total sample mentioned AI.

This study is based on a final project due in December. By the time of the presentation, the literature review, document analysis, coding, initial findings, and comparison will have been finalized and submitted.

ORAL PRESENTATION

Speakers

M **McKenna Moock**
Lead Presenter | D - 7

O **Olivia Goldstein**
Co-Presenter | D - 7

The Tragedy of the Civil War First Lady: An Evaluation of Mary Todd Lincoln’s Case of Mental Illness

4:35 PM – 4:55 PM

UNDERGRADUATE

Mary Todd Lincoln's insanity trial was a topic of heated public debate in 1875. Historians, including Mark E. Neely and Jason Emerson, have since debated her underlying diagnosis as well as the fairness of her insanity trial to include the authenticity of the medical and lay testimony and the true motives of her son and then-conservator, Robert Todd Lincoln. Instead, my evaluation will broaden the historiographical debate by contextualizing Mrs. Lincoln’s insanity case within the overall state of psychiatric medicine in the post-Civil War era. Through examination of the "MTL Insanity File" collection of correspondence between Robert Lincoln, the doctor, the judge and attorney, other family members and Mrs. Lincoln herself, with cross-reference to medical journals of the 1870s, my analysis demonstrates that everyone involved were in reality powerless to support Mrs. Lincoln and manage her case. Their incapacity to manage her illness and behaviors stemmed from a stark lack of sufficient medical treatment for mental illness during Mrs. Lincoln’s time. The contemporary medical journals indicate that the substandard medical treatment was a direct result of the widespread misunderstandings of mental disorders, caused by a lack of medical knowledge in psychiatry in the nineteenth century. This analysis illustrates the critical need for developing adequate treatments for mental disorders by highlighting a case of severe mental illness in a highly consequential figure in American history.

ORAL PRESENTATION

Speaker

M **Mike Raska**
Lead Presenter | D - 7

D - 8: Physical and Mathematical Sciences (U) 2

3:00 PM – 5:00 PM | Location: Mata'yuum

UNDERGRADUATE

ORAL PRESENTATION

Speakers

A **Andrew Meyer**
Lead Presenter | D - 8

C **Christopher Farias**
Lead Presenter | D - 8

L **Leon Welstand**
Lead Presenter | D - 8

Lizeth Sanchez Zamudio
San Diego State University

R **Rocco Ammirata**
Lead Presenter | D - 8

Synthesis of Carmaphycin Analogs as Potential Therapeutic Agents Against Trichomonas Vaginalis

3:15 PM – 3:35 PM

UNDERGRADUATE

Trichomonas vaginalis (TV) is one of the most common sexually transmitted infections worldwide that affects millions of people annually. The current treatment options for TV are imidazole-based drugs that produce several side effects and have become less capable in

treating the infection due to the appearance of drug-resistant strains. Alternative treatment options are needed due to the prevalence of the disease and because of the diminishing effectiveness of the current drugs. The natural product carmaphycin was isolated from cyanobacteria found on small islands in the Caribbean Sea and has been shown to have cytotoxic properties against TV. Carmaphycin's cytotoxicity toward TV stems from its interaction with a target proteasome within the parasite, making it a potential treatment option. The goal of this study is to synthesize analogs of carmaphycin and screen them for their activity toward TV to potentially discover a better treatment option.

Carmaphycin's biological activity results from the presence of an epoxyketone "warhead" that is the principal component in inhibiting the target proteasome. Within carmaphycin's structure, the epoxyketone is at the end of a linear tripeptide chain with a hexanoic acid moiety at the other terminus. The analogs of carmaphycin that were synthesized made changes to the amino acids within the peptide chain and the terminal group opposite the epoxyketone while retaining the overall structure of carmaphycin. The synthesis was performed using standard peptide coupling reagents and deprotection strategies to join the amino acids in the desired order. The epoxyketone-containing amino acid was synthesized from its corresponding enone using dimethyldioxirane and then added to the rest of the molecule to complete the synthesis.

Four analogs of carmaphycin have been successfully synthesized with differences in their peptide framework and stereochemistry of the epoxyketone. The completed analog syntheses, future syntheses, and the biological testing that will be performed are meaningful steps toward developing improved TV treatments.

ORAL PRESENTATION

Speakers

A **Andrew Meyer**
Lead Presenter | D - 8

A **Andrea Cordero**
Co-Presenter | D - 8

Do Icy Moons in the Outer Solar System Receive Enough Sunlight for Photosynthesis?

3:35 PM – 3:55 PM

UNDERGRADUATE

The icy moons in our outer Solar System are exciting because several are thought to have oceans of liquid water under their crust, and thus potentially harbor life. On Earth, photosynthesis uses sunlight to drive the chemical processes that sustain complex life, which raises the question of whether similar processes could operate on these icy worlds. Given their great distances from the Sun, the question we investigate is whether these worlds receive enough sunlight to enable photosynthesis. To answer this, we estimate the number of photons in the photosynthetically active radiation (PAR) range (400–700 nm) that reaches each body. We compare these with published measurements of the minimum light levels required for photosynthesis. We find that the available sunlight is sufficient for photosynthesis, at least at the surface (or top of atmosphere for Titan). Thus, in terms of the number of photons alone, photosynthesis is potentially possible. The next step is to estimate how much light gets transmitted through the atmosphere or layers of ice, since this is where any life might exist.

ORAL PRESENTATION

Speaker

C **Christopher Farias**
Lead Presenter | D - 8

Design of a Pulse-Width Modulation Array Controller for Ultrasound Wave Interference

3:55 PM – 4:15 PM

UNDERGRADUATE

Acoustic levitation requires precise constructive interference of ultrasonic sound waves to create a trap point capable of levitating a small particle. Previous work in our group has demonstrated stationary levitation using two opposing 40kHz transducers and Schlieren imaging to validate results. Extending this approach to a user-defined dynamic trap point in three-dimensional space, an Arduino Mega controller was utilized to demonstrate the feasibility of up to six transducers in a symmetrical phased array. This presentation will introduce the theoretical and mathematical background for acoustic phased arrays and describe our group's transition from a software-based microcontroller method to a hardware-described field programmable gate array (FPGA) architecture for the array controller. Key considerations include parallel signal generation, precise timing, and fixed-point arithmetic programming such as Newton's method for approximating square roots. Future work with the FPGA platform will enable the scalability, parallel processing, and precision required for future applications in multi-particle levitation systems and acoustic holography.

ORAL PRESENTATION

Speaker

L **Leon Welstand**
Lead Presenter | D - 8

Mapping Cool Interstellar Gas in Early-Type Galaxies via Ca II and Na I

4:15 PM – 4:35 PM

UNDERGRADUATE

Early-type galaxies are massive, elliptical systems that are commonly found to lack significant star formation activity. The presence of cool gas in some early-type galaxies raises important questions about their evolutionary history and the mechanisms responsible for gas accretion. In this study, we investigate the presence of cool gas by analyzing the Ca II (3934 & 3969 Å) and Na I (5891 & 5897 Å) doublets, both sensitive tracers of cool interstellar gas. We use spectroscopic data from Sloan Digital Sky Survey (SDSS-IV)/Mapping Nearby Galaxies at Apache Point Observatory (MaNGA), selecting early-type galaxies with redshifts 0.01 to 0.14 and stellar masses between 8.65 < log M*/Msun < 11.58. We have measured the equivalent widths of the Ca II and Na I doublet lines for a subset of 10 early-type galaxies, and our analysis reveals significant absorption in a fraction of our sample. This is consistent with previous findings that about 30% of early-type galaxies contain atomic hydrogen gas. These previous studies have investigated a small sample of a few hundred galaxies, and in this work, the data analysis is ongoing for a much larger sample to further elucidate the implications of cool gas in these systems.

ORAL PRESENTATION

Speaker

Lizeth Sanchez Zamudio
San Diego State University

Probing Silver Nanoparticle Production Using Fast UV-Visible Absorption Spectroscopy

4:35 PM – 4:55 PM

UNDERGRADUATE

Silver nanoparticles (AgNPs) have been of growing interest for many years, due in part to their excellent optical properties and antimicrobial effects. A variety of methods have been developed to synthesize nanoparticles of various shapes and sizes, depending on their intended application. In spite of their popularity, the fundamental reaction pathway for the most common AgNP synthesis technique, the borohydride reduction of silver ions in aqueous solution, is not well developed. As a result, reproducibility remains one of the biggest obstacles for AgNP production, as the final particle properties always include a level of variability between syntheses. Determination of the reaction pathway could enable precise control over their synthesis.

The generally accepted mechanism for the synthesis of AgNP via borohydride reduction involves the reduction of silver ions to silver atoms by sodium borohydride ($NaBH_4$). These silver atoms aggregate to form silver nanoparticles, which are stabilized by sodium citrate (NaCit) to prevent further aggregation. The generally accepted reaction using silver nitrate ($AgNO_3$) as the source of silver ions: $AgNO_3 + NaCit + NaBH_4 \rightarrow AgNP$

Our research aims to analyze the reaction pathway by detecting chemical intermediate species. Using a laser-triggered fast UV-Visible absorption spectrometer and a digital camera, we have performed time-resolved spectroscopy to record spectra on a millisecond time scale. We have identified two distinct peaks. Initially, a peak appears at 240 nm. Its intensity subsequently falls and gives rise to a second peak at 390 nm, which is characteristic of AgNPs. The presence of an isosbestic point at 330 nm suggests the formation of a reaction intermediate. Computational studies suggest the peak at 240 nm arises from silver hydrides, which have never been detected in solution. Their existence indicates an alternative to the generally accepted AgNP mechanism, in which only pure silver clusters are formed.

ORAL PRESENTATION

Speaker

R

Rocco Ammirata
Lead Presenter | D - 8

D - 9: Behavioral and Social Sciences (U) 5

3:00 PM – 5:00 PM | Location: Visionary Suite

UNDERGRADUATE

ORAL PRESENTATION

Speakers

D

Devin Vitug
Lead Presenter | D - 9

M

Mirtha Heredia
Lead Presenter | D - 9

S

Sara Macumu
Lead Presenter | D - 9

S

Savana Hampton
Lead Presenter | D - 9

P

Priya Kumar

Recruitment and Baseline Characteristics of African American Women in a Prenatal Yoga App Study OK

3:15 PM – 3:35 PM

UNDERGRADUATE

Introduction: African American (AA) women experience higher maternal mortality and poorer mental health outcomes compared to White women. Prenatal yoga shows promise for improving mental well-being and pregnancy-related outcomes, and mobile app delivery may reduce barriers to access. However, this approach has not been well studied among AA women. This study describes recruitment strategies and baseline characteristics of AA pregnant women enrolled in an ongoing mobile app–based prenatal yoga study.

Methods: This is a single-group pre–post test design (target sample N=40). Recruitment is through social media, community events, and BuildClinical. Eligible participants (18–46 years; 12–28 weeks' gestation; yoga-naïve; singleton pregnancy) complete a 12-week of prenatal yoga using a mobile app and wear a smartwatch. Participants complete three online assessments at baseline, mid-, and post-intervention measuring experiences of discrimination, perceived stress, mindfulness, self-awareness, depressive symptoms, and physical activity. Baseline characteristics are summarized using descriptive statistics (e.g., means ± SD).

Results: To date, seven women have completed the baseline survey following recruitment changes (i.e., using BuildClinical and recruiting nationally). Mean baseline measures show elevated perceived stress (17.3 ± 4.7), possible depression (10.3 ± 3.9), moderate discrimination (2.12 ± .50), and high mindfulness (4.25 ± .64) and self-awareness (3.88 ± 0.30). Physical activity levels were high for sports activity ranging from 247-483 min/week. Chronic conditions were common including depression (N=3), anxiety (N=3), asthma (N=3), and cardiometabolic conditions (N=1).

Discussion: The preliminary findings demonstrate enhanced feasibility of recruiting AA pregnant women into a prenatal yoga app intervention using digital recruitment strategies. Elevated stress, depressive symptoms, and chronic conditions highlight the need for accessible, culturally responsive prenatal interventions. This data will inform the design of a future trial and grant application.

ORAL PRESENTATION

Speakers

D **Devin Vitug**
Lead Presenter | D - 9

B **Brandon Deal**
Co-Presenter | D - 9

Self-Compassion, Attachment Security, and Love of Life in Latine College Students

3:35 PM – 3:55 PM

UNDERGRADUATE

The rise in positive psychology has increased research on well-being and love of life. Love of life is a generally positive attitude towards one's own life, a liking for it, and pleasurable attachment (Abdel-Khalek, 2007). This study explores relationships between self-compassion, attachment styles, and love of life among Latine college students attending a U.S.–Mexico border institution. Self-compassion entails treating oneself with kindness, recognizing one's shared humanity, and being mindful when considering negative aspects of oneself (Neff, 2011). Attachment Theory explains how life experiences with primary caregivers strongly influence internal working models that include self-perception of one's values and worthiness of care (Raque-Bogdan et al. 2011). Research on the relationships between self-compassion, attachment styles, and love of life is limited, especially in Latine populations. Based in attachment theory and positive psychology, this study examines how attachment style and self-compassion relate to Latine students' love of life. Acculturation is included as a possible factor influencing the relationships. It is hypothesized that students with less self-compassion and insecure/avoidant attachment experience lower levels of love of life; that students with more self-compassion and secure attachment experience more love of life; male students are more likely to show higher levels of self-compassion and secure attachment; and that acculturation will be correlated to love of life. Data collection is in progress, approximately 100 Latine college students will complete the following measures: Self-Compassion Scale (Neff, 2003); Adult Attachment Scale (Collins & Read, 1990); Love of Life Scale (Abdel-Khalek, 2007); and the second edition of the Acculturation Rating Scale for Mexican Americans (Cuellar et al., 1980). Regression analyses will be conducted to investigate relationships between the variables. Findings of this study will expand on positive psychology literature and guide wellness programs that promote self-compassion and love of life.

ORAL PRESENTATION

Speaker

M **Mirtha Heredia**
Lead Presenter | D - 9

Neurobehavioral Indices of Cognitive Flexibility Alterations in Young Adult Binge Drinkers

3:55 PM – 4:15 PM

UNDERGRADUATE

Binge drinking, defined as a pattern of episodic intake of high levels of alcohol within a brief interval, is prevalent among young adults. It represents a public health concern associated with an array of health harms, including the risk of Alcohol Use Disorder (AUD). Further research is needed to characterize the implications for higher-level cognitive skills. Cognitive flexibility, or the ability to adapt to dynamic conditions, is a crucial executive function for behavioral regulation, such as refraining from alcohol misuse. The current study investigated cognitive flexibility by comparing behavioral and neural indices obtained during wakeful rest with those obtained during high- vs. low-level Stroop conflict, and a Go/NoGo inhibitory control task. Electroencephalography (EEG) data were recorded from 59 young adults (23.4 ± 3.3 years of age) who were categorized as BDs (N = 29) or LDs (N = 30) based on their drinking history. The groups performed with comparable accuracy on both tasks and had similar response times on the Go/NoGo task. BDs responded more slowly to the high-conflict Stroop condition, indicative of compensatory slowing to ensure normative accuracy. EEG data were analyzed across major frequency ranges by calculating complex power spectra using a Fast Fourier Transform. Task-related theta oscillations are a reliable index of cognitive engagement. LDs showed an expected increase in theta power from rest to both tasks. In BDs, rest-to-task theta increase was attenuated in the Go/NoGo task and observed only in the high-conflict Stroop condition, indicating reduced ability to adapt to cognitive demands. Resting-state alpha peak frequency (APF) was slower in BDs than in LDs, reflecting an altered baseline state. A task-induced APF increase in the Go/NoGo task was observed solely in BDs, as well as a greater APF increase in the Stroop task. The convergence of behavioral and neural results suggests that while cognitive flexibility and baseline neural efficiency are reduced in BDs, they may be able to compensate under challenging cognitive conditions.

ORAL PRESENTATION

Speaker

Sara Macumu

Lead Presenter | D - 9

Prenatal Cannabidiol Exposure Alters Emotion-Related Behavior

4:15 PM – 4:35 PM

UNDERGRADUATE

Cannabis contains hundreds of cannabinoids, including cannabidiol (CBD), a non-psychoactive drug growing in popularity due to easy accessibility and potential therapeutic properties. A recent survey found that 20% of pregnant women across the United States and Canada reported using CBD products (Bhatia et al., 2024). However, there is little knowledge of the therapeutic effectiveness or potential adverse effects of CBD on the developing fetus. The current study used an animal model to investigate the effects of prenatal CBD on emotion-related behaviors. Pregnant Sprague-Dawley rats were exposed to 5, 10, or 25 mg/kg of CBD from gestational day 5-20 via an edible cookie dough ball. On postnatal day 40, offspring were tested on an elevated plus maze (EPM). The EPM is a plus -shaped maze raised above the ground, with two open arms and two closed arms. Given that rats are prey animals, time spent in the open arms indicates reduced anxiety or increased risk-taking behavior. Subjects were placed in the EPM for a total of five minutes and their activity, including arm entries and time spent in each arm were recorded. Data were then coded using ODlog software and averaged by two independent investigators. Data suggest that prenatal CBD may alter anxiety-like behavior. Female subjects exposed to prenatal CBD were more active and spent less time in the closed arms, in a dose-dependent manner, with the highest dose producing the most severe effects. Female subjects exposed to 5mg and 25mg of prenatal CBD spent more time in the center of the maze and subjects exposed to 10mg of prenatal CBD spent more time in the open arm of the maze compared to controls, indicating reduced anxiety-like behavior. These data suggest that prenatal CBD exposure leads to hyperactivity and an increase in risk-taking behavior. These findings suggest that CBD use during pregnancy may impact behavioral and emotional development of the fetus; thus, pregnant individuals should be advised of potential effects of CBD use. Supported by Center for Medicinal Cannabis Research P64-07-001.

ORAL PRESENTATION

Speaker

Savana Hampton

Lead Presenter | D - 9

Gender, Cognition and Power: Psychological and Neurological Bias in Political Leadership

4:35 PM – 4:55 PM

UNDERGRADUATE

Despite gender equality advancements, women continue to be underrepresented in political leadership, facing heightened scrutiny compared to their male counterparts. My research investigates why female political leaders are evaluated more harshly even when their actions mirror those of men. While traditional explanations emphasize overt discrimination and cultural norms, my findings argue that gendered political perception is rooted in cognitive and neurological processes that occur before conscious deliberation.

Using political science, cognitive psychology, neuroscience and gender studies, this literature review based analysis looks at how implicit bias, cognitive shortcuts and neural processes shape leadership perception. Using frameworks such as the dual process theory, role incongruity theory, and backlash theory, research shows how leadership traits are coded as masculine, creating structural disadvantages for women in positions of authority. Using Kimberle Crenshaw's intersectionality framework further shows how race and gender work together to intensify scrutiny and constrain "acceptable" behavior for women of color in politics.

Through the usage of cognitive, neurological and political lens, my research highlights how voter perception is influenced by automatic mental processes rather than objective evaluations of competence. These findings underscore how hidden perceptual bias undermines democratic representation, emphasizing the importance of inclusive political evaluation for a true democracy.

ORAL PRESENTATION

Speaker

Priya Kumar

E - 4: Media in a Changing World (U) 1

3:00 PM – 5:00 PM | Location: Templo Mayor

UNDERGRADUATE

MEDIA ORAL PRESENTATION SPECIAL SESSION

Speakers

Ainsley Holt
Lead Presenter | E - 4

Elizabeth Sternin
Lead Presenter | E - 4

Nicholas LIndlar
Lead Presenter | E - 4

Salma Facio
Lead Presenter | E - 4

Tyler Paulo
Lead Presenter | E - 4

The Price of Objectification: Linking the Male Gaze to Notions of "Worth" in a Capitalist Society

3:15 PM – 3:35 PM

UNDERGRADUATE

First coined by film critic Laura Mulvey in 1975, the term “male gaze” applies to depictions of women which overemphasize women’s bodies, thus resulting in objectification. Beyond the visual arts, objectification of women is also closely tied to the commodification of their bodies and sexualities in the capitalist system, intensified by neoliberal ideologies. Addressing whether employing the “male gaze” in artwork reinforces its misogynist framework or has the potential to expose its shortcomings, as well as who gets to make those determinations, my research uses John Currin’s 1999 oil on canvas work, The Hobo as a case study. Considering that the work depicts a hypersexualized young woman, epitomizing the male gaze through her exaggerated breasts, youthful beauty and lack of clothing, my paper’s positionality challenges the prevailing interpretation that it perpetuates sexist objectification. Using the art historical methods of formal, feminist, and Marxist analysis, and drawing on existing scholarship and interviews, I argue that The Hobo satirically revitalizes the “male gaze” to expose the shared logics through which gender and economic “worth” are constructed. Through these assertions, my paper reframes readings of Currin’s work from sexist objectification to a critique of systematic inequality.

MEDIA ORAL PRESENTATION SPECIAL SESSION

Speaker

Ainsley Holt
Lead Presenter | E - 4

AMC’s Interview with the Vampire and Sharing Ignored Histories

3:35 PM – 3:55 PM

UNDERGRADUATE

Vampires have been used to depict how marginalized communities interact with, and are treated by, the social systems they live in. Depictions of non-White narratives within American Horror Pop Culture have been underestimated and largely ignored throughout the years. Because

of this, there is a lack of Black Vampires and narratives told from an explicitly Black perspective. Slowly, Black Vampires have been accepted within popular culture, making way for ignored narratives to take center stage. An example within this most recent decade is AMC’s adaptation

of Anne Rice’s Interview with the Vampire (1976).

Rice’s original work was highly influential to the development of the “Vampire.” However, Rice’s attempt to explore the meaning of power in relation to evil is undermined as her central character, Louis, understands his role in the world as a slave owner in Colonial New Orleans. AMC’s adaptation recognizes this limitation and alters the story to fit modern interpretations of the Vampire. Louis’ character is written as a Black man who owns a bawdy house on Liberty Street. This street is a section of Storyville, New Orleans’ once-famous red-light district, that would be systematically dismantled with the start of the Progressive era and the

Great War. Throughout the show, Louis struggles to accept all parts of himself, including sexuality and race as represented in vampirism and Storyville. The ways in which the ignored narratives have been misunderstood are illustrated through Louis and the systemic destruction of Storyville.

Textual analysis of Louis reveals the transformative role that Black

Vampires play in representing intersectional identities in Popular Culture. Furthermore, a comparative post-structural analysis reveals the role of Popular Culture in producing and sharing ignored narratives in American History. As Black History is erased in American education and museums, it receives unexpected recognition in American Popular Culture.

MEDIA ORAL PRESENTATION SPECIAL SESSION

Speaker

Elizabeth Sternin
Lead Presenter | E - 4

How Flooding is Drowning Out Unhoused Voices: Information Across the San Diego Riverbed

3:55 PM – 4:15 PM

UNDERGRADUATE

Access to information plays a large part in response to times of crisis and unhoused communities are disproportionately impacted by this lack. An ample amount of unhoused people live along the San Diego Riverbed where flooding is prevalent and information is scarce. This population lacks consistent access to phones and chargers which makes it hard to deliver information. As a result they tend to be the least informed on events that impact them the most like flooding. The unhoused have more trouble dealing with problems caused by climate change due to their housing situation and lack of resources. In particular the unhoused lack stable infrastructure for dealing with flooding, an issue only worsened by climate change. This creates a loop where flooding hurts unhoused infrastructure and these structures never get rebuilt, unless action is taken. We will undertake qualitative research by interviewing the unhoused population in the San Diego Riverbed and log the information through written field notes. Homeless outreach professionals will also be consulted with the same methods. Collecting data on how unhoused populations receive information aids the city in allocating resources, helping underserved communities, and responding in times of crisis.

MEDIA ORAL PRESENTATION SPECIAL SESSION

Speaker

Nicholas LIndlar
Lead Presenter | E - 4

Campanile Runway: Social Media, Fashion, & Identity

4:15 PM – 4:35 PM

UNDERGRADUATE

This ethnographic study examines how social media shapes fashion choices, identity formation, and acts of resistance among college women at San Diego State University. Drawing on Feminist Theory, Burke's Identification, and Social Learning Theory, the project explores how digital platforms such as TikTok and Instagram intensify patriarchal pressures, fuel comparison, and encourage overconsumption, while simultaneously enabling solidarity, affirmation, and community-building. Data was collected through semi-structured interviews with three SDSU women, participant observation across campus spaces, including the "Campanile Runway," and digital ethnography of #sdsu TikTok content. Findings reveal three central themes: (1) patriarchal norms frame fashion as a competitive game that polices women's bodies and performances of femininity; (2) social media collapses distinctions between attractiveness and clothing, amplifying comparison and driving consumption; and (3) micro-acts of solidarity, such as compliments and supportive glances, function as everyday resistance that fosters belonging across aesthetic and cultural boundaries. This study highlights the dual role of social media as both a site of pressure and a tool of empowerment, offering insight into how college women navigate visibility, belonging, and identity in a digitally mediated campus culture.

MEDIA ORAL PRESENTATION SPECIAL SESSION

Speaker

Salma Facio
Lead Presenter | E - 4

An Analysis of Twitter in its Post-Elon era and the Platform's Uptick in Right-Wing Sentiment

4:35 PM – 4:55 PM

UNDERGRADUATE

I conducted a research study on whether or not Twitter's (now known as X) algorithm pushes right wing content at a higher rate towards its users. In the research process, I defined important terms that labeled content as right-wing. To research this topic, 5 different twitter

accounts were created. These accounts were each given individual characteristics in order to see if the right wing media would be pushed on any user indiscriminately. Two of the four accounts analyzed had what is considered right wing media pop up in their search page. When interacted with those media posts and different media accounts, more such posts started to pop up on the page. I concluded that when a user interacts with right wing media on Twitter, more of that type of media will start to appear on their page as recommendation. The full research manuscript outlines an investigative approach to understand the influence that Elon Musk has had and continues to have on the rise of right-wing content on a recently acquired social media platform, Twitter/X. The research explains the role of social media in today's age and how right-wing, conservative content on these platforms can have violent-leaning consequences that manifest themselves in the real world.

MEDIA ORAL PRESENTATION SPECIAL SESSION

Speaker

Tyler Paulo
Lead Presenter | E - 4

I - 1: Behavioral and Social Sciences (U) 7

3:00 PM – 5:00 PM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

Amanda Ta
Lead Presenter | I - 1

A **Anthony Nevarez**
Lead Presenter | I - 1

C **Caitlyn Cu**
Lead Presenter | I - 1

G **Georgia Brewster**
Lead Presenter | I - 1

I **Isabel Zelaya**
Lead Presenter | I - 1

J **Jocelyn Garcilazo**
San Diego State University

M **Maria Huerta-Avila**
Lead Presenter | I - 1

S **Shruti More**
Lead Presenter | I - 1

Challenging Racial Bias in California Courts: Early Applications of the Racial Justice Act

3:00 PM – 4:55 PM

MASTER'S

The Racial Justice Act (RJA) of California, established in 2020, offers defendants a legal avenue to challenge racial bias in the procedures of charging, jury selection, and sentencing. This study analyzes the application of the RJA during its initial years of operation, emphasizing the nature of claims presented and their results across various criminal cases. The study utilizes publicly accessible trial court filings and appellate decisions to monitor initial patterns in RJA litigation and evaluates the Act's impact on prosecuting methods and sentencing results. The study will exemplify the statute's scope by presenting two to three case studies that involve correctional facility informant strategies, including the Perkins Operations, which generate persistent concerns regarding dependability and racially biased enforcement. The findings collectively present a crucial overview of the RJA's first impact on California's criminal justice system and suggest its potential as an initial model for extensive reform initiatives.

POSTER

Speaker

S **Shruti More**
Lead Presenter | I - 1

Smoking and Vaping Policies in Newly Constructed, State-Funded Multiunit Housing in California.

3:00 PM – 4:55 PM

UNDERGRADUATE

Despite a decline in overall smoking prevalence, approximately one-third of nonsmokers living in multiunit housing report exposure to secondhand tobacco smoke. As California continues to invest heavily in the construction of multiunit affordable housing (MUH), questions remain about whether newly developed properties consistently adopt and enforce smoke- and vape-free policies to protect resident health. Despite existing federal smoke-free policies, a substantial proportion of affordable MUH developments in California falls outside their regulatory scope, leaving smoking and vaping policy adoption in this sector largely unregulated. To address this gap, data from the California Tax Credit Allocation Committee (CTCAC) was used to identify smoking and vaping policies governing residential units in state-subsidized housing. The study focused on N=281 newly constructed MUH developments placed in service between 2021 and 2025 that received California state housing tax credits, excluding single-room-occupancy properties. Telephone interviews were conducted with staff from a stratified random sample of N=57 properties to assess whether smoking or vaping was allowed in units, on balconies, or in shared indoor spaces, and whether these policies were stated in lease agreements. Smoking or vaping in residential units or on balconies was prohibited at 56 of 57 properties (98%), with only one property (2%) allowing smoking on balconies, and none (0%) permitting smoking or vaping in indoor common areas. Smoking and vaping rules were stated in lease agreements at 52 of 57 properties (91%); 1 property (2%) reported that smoking rules were included but vaping was not specified, and 4 properties (7%) were unsure whether smoking and vaping policies were stated in the lease. These policies protect current and future residents from exposure to toxic tobacco smoke and residue, reinforcing the role of state-funded housing policy in public health. Future research will explore enforcement mechanisms.

POSTER

Speaker

Amanda Ta
Lead Presenter | I - 1

Patterns of Nonconcussive Repetitive Head Impacts in Competitive Youth Soccer Games

3:00 PM – 4:55 PM

UNDERGRADUATE

As technology advances in sports, it highlights the increasing number of sports-related concussions (SRC) among athletes of all competitive levels. In the US, approximately 3.8 million SRC occur annually, with up to 50% going unreported or undiagnosed. Chronic traumatic encephalopathy (CTE) is a degenerative neurological disease that occurs as a result of repetitive head impacts (RHI), including concussion and nonconcussion hits. Due to the recent increase in CTE awareness in athletes who participate in contact sports, there has been an increase in inquiries regarding CTE in soccer players. Despite this, there is a lack of data regarding the head impacts of youth soccer athletes. This study aims to gather information about head impacts among male high school soccer athletes. We analyzed videos of soccer games from one season of a California high school. Every head impact was recorded, time-stamped, and listed the player who was impacted. Results showed that players who occupied positions in the center of the field tended to have a higher number of head impacts. Players in central field positions also tended to use their heads to hit redirection balls kicked from further distances. Although concussions and CTE have been recently studied in American football, little is known about the effect of head impacts among youth soccer players.

POSTER

Speaker

A

Anthony Nevarez

Lead Presenter | I - 1

Preliminary Feasibility of a Prenatal Yoga App Intervention for African American Pregnant Women

3:00 PM – 4:55 PM

UNDERGRADUATE

Introduction: African American (AA) pregnant women face disproportionately high rates of adverse maternal and infant outcomes driven by structural inequities and limited access to care. Prenatal yoga has been shown to improve well-being. This study explores the preliminary feasibility of a prenatal yoga intervention in AA pregnant women and examines trends in well-being outcomes.

Methods: This ongoing single-arm pilot study is recruiting yoga naive AA pregnant women (N=40, 13-28 weeks gestation, singleton pregnancy) via flyers, social media, and BuildClinical. Participants use a prenatal yoga app for ≥20 minutes, 3 days/week for 12 weeks and wear a smartwatch. Mental and physical health outcomes (stress, depression, discrimination, physical activity, etc.) are assessed at baseline, 6 weeks, and 12 weeks with satisfaction measured at 12 weeks. Feasibility outcomes are summarized using descriptive statistics (e.g., means ± SD, frequencies) and outcome trends. We hypothesize the intervention will be feasible and show favorable trends in outcomes.

Results: To date, 4 participants have completed the study. All participants reported that they either somewhat (N=3, 75%) or very much (N=1, 25%) enjoyed prenatal yoga. Half of the participants were very satisfied, and all were likely to recommend the app. Most (N=3, 75%) reported barriers to completing yoga and found 60 min/week too much. None agreed that the app was representative of AA bodies and 50% disagreed or felt neutral that the app was inclusive of AA cultural perspectives. Cultural appropriateness of the app ranged from 4-7 (out of 10). The mean stress scores decreased from 18.75 to 14.5 while other mental and physical health outcomes remained relatively similar.

Discussion: Preliminary findings suggest that the prenatal yoga app is acceptable and may reduce perceived stress to below clinically relevant thresholds. Opportunities to enhance feasibility include increasing cultural inclusivity through diverse instructors and representation. Findings should be interpreted cautiously, as the study is ongoing.

POSTER

Speakers

C

Caitlyn Cu

Lead Presenter | I - 1

L

Lauren Gatdula

Co-Presenter | I - 1

Effects of Prenatal CBD Exposure on Spatial Learning and Memory Performance

3:00 PM – 4:55 PM

UNDERGRADUATE

Cannabidiol (CBD), the non-psychoactive component in cannabis, is perceived as safe/therapeutic, which may be contributing to increased use among pregnant women. However, research on the effects of prenatal CBD exposure is limited. Using an animal model, we previously found that males exposed to 50 mg/kg/day prenatal CBD (a high but clinically relevant dose) exhibited memory deficits and reduced anxiety, while no effects were seen in females. The current study examined the dose-dependent effects of prenatal CBD exposure on spatial learning and memory to determine effects of lower doses. Pregnant Sprague-Dawley rats received a cookie dough edible with CBD (5, 10, or 25 mg/kg) or control vehicle (0 mg/kg) during gestational days 5-20. Offspring were tested on a spatial learning and memory task (Morris Water Maze) during postnatal days (PD) 40-46. Offspring were trained to find a hidden platform in a water tank using extramaze cues. The platform was removed on PD 47 for a 1-minute probe trial to assess spatial memory. An automatic tracking system measured latency, path length, speed, heading angle, and time spent in thigmotaxis (the periphery). Interestingly, females prenatally exposed to 10 mg/kg/day CBD had shorter latencies and path lengths to find the platform compared to other treatment groups during acquisition ($p<0.05$). However, learning curves were similar to controls, suggesting prenatal CBD altered performance variables rather than learning. During the probe trial, a subtle dose-response improvement was seen in time spent in the target quadrant among females, but this effect was not statistically significant. No significant group differences were seen among males. Thus, prenatal CBD exposure alters Morris Water Maze performance in a dose and sex-dependent manner. Alterations in the hippocampus, a critical region for learning and memory, may account for the effects of prenatal CBD. In combination with our previous results, these findings warrant further investigation of CBD use during pregnancy. Supported by Center for Medicinal Cannabis Research P64-07-001.

POSTER

Speaker

G

Georgia Brewster

Lead Presenter | I - 1

Beyond the Border: Immigration Enforcement and the Criminalization of Latina Motherhood

3:00 PM – 4:55 PM

UNDERGRADUATE

U.S. immigration enforcement is often portrayed as an impartial system intended to manage borders and protect national security; yet, this narrative conceals how enforcement practices function as instruments of gendered social control. This study argues that U.S. immigration enforcement functions as a mechanism of reproductive governance, disproportionately controlling and criminalizing Latina motherhood through detention, surveillance, family separation, and limited access to reproductive healthcare. The study utilizes feminist political theory, intersectionality, and reproductive justice frameworks to contextualize current enforcement within historical patterns of racialized reproductive control, such as eugenic sterilization programs and welfare surveillance targeted at Latina women. The research analyzes immigration policies, detention practices, and empirical data to illustrate how Latina immigrant women are perceived as reproductive threats rather than rights-bearing individuals, therefore transforming motherhood into an argument for punishment rather than protection. Special emphasis is placed on the incarceration of pregnant individuals, the criminalization of parenting through family separation, and the increasing use of surveillance technology, including electronic monitoring. A case study of the Irwin County Detention Center exemplifies the manifestation of these processes, exposing systematic deficiencies in informed consent, medical care, and reproductive autonomy inside immigration detention. This research demonstrates that immigration enforcement exceeds border regulation, impacting individuals, families, and reproductive futures, consequently raising significant concerns regarding human rights, reproductive justice, and democratic accountability.

POSTER

Speaker

I

Isabel Zelaya

Lead Presenter | I - 1

Wearable Technology for Capturing Communication Stress in Children: Preliminary Empatica & LENA Data

3:00 PM – 4:55 PM

UNDERGRADUATE

Most recent advances in wearable technology research have focused on adults, making it crucial to investigate the feasibility and validity of these tools for use with children. Validating these tools is essential for expanding research questions related to communication settings while maintaining high ecological validity.

The Language Environment Analysis (LENA) system is a wearable recorder that collects language and listening environments and has been popular among child language researchers for children ages 0–3. However, fewer studies examine its use with school-aged children, and even fewer studies include bilingual children. Our study addresses these gaps by examining the feasibility and validity of concurrently using the LENA system along with Empatica EmbracePlus in children ages 5–10. The Empatica EmbracePlus is a wearable device equipped with sensors that enable the analysis of autonomic nervous system activity. The concurrent use of these devices allows for the integration of naturalistic communication data with real-time physiological stress responses in everyday environments.

The present study seeks to determine the reliability of Empatica EmbracePlus in capturing physiological stress responses during communication, and the feasibility of the LENA system in identifying communication interactions when aligned with these autonomic nervous system responses. We hypothesize that the concurrent use of both devices will allow for synchronized measurement of stress responses (via skin conductance and heart rate) aligned with audio recordings of the communication environment, enabling the examination of communication-related stress in daily life. We also compared Empatica EmbracePlus to lab-grade equipment (BIOPAC) to determine reliability and validity. In a controlled environment, participants were exposed to a series of emotionally arousing videos while wearing the Empatica EmbracePlus watch and the BIOPAC sensors. We will present feasibility results, lessons learned, and best practices for acquiring information from young children using wearable technology.

POSTER

Speakers

J **Jocelyn Garcilazo**
San Diego State University

J **Jennifer Holbea**
Co-Presenter | I - 1

An ERP Study of the Effects of Gender Stereotype in Spanish/English Bilinguals

3:00 PM – 4:55 PM

UNDERGRADUATE

Spanish is a grammatically gendered language that marks the gender of some biologically gendered concepts with the final morphemes a and o (e.g. female/male NURSE = enfermera/enfermero). This study investigated gender stereotypes of Spanish/English bilinguals by observing the influence of their first language (L1, Spanish) on their processing of English (L2).

Following the design of an Italian priming study (Pesciarelli et al., 2019), we recorded event-related potentials (ERPs) to target pronouns (SHE/HE) preceded by stereotypically associated primes (e.g., NURSE, SURGEON). Stimuli were presented in English. Spanish translations of half the primes were gender-marked (enfermera/enfermero) while the other half were gender-unmarked (SINGER = cantante). Participants were instructed to read both prime and target then categorize the gender of the target pronoun with a button press. We compared patterns for the two pronouns

in two stereotypical gender congruency conditions: congruent NURSE/SHE and SURGEON/HE vs. incongruent NURSE/HE and SURGEON/SHE. We also compared two grammatical gender translation conditions: marked, NURSE = enfermera/enfermero vs. unmarked, SINGER = cantante. ERPs were averaged in four time-windows: 200 – 400ms (N400), 400 – 600ms (P3), and 400 – 800ms (LPP). In preliminary analyses female pronouns show larger P3 and LPP components when preceded by incongruent as opposed to congruent nouns while male pronouns show a typical N400 priming effect. Interestingly, only male pronouns showed a difference in the strength

of effects depending on the presence of grammatical markers in Spanish such that the N400 effect was more pronounced when the noun was marked. These results replicate Pesciarelli's in finding different patterns in the brain response to congruency violations for female and male stereotypes and extend those results in observing effects of gender markings in unseen translations for male stereotypes.

POSTER

Speaker

M **Maria Huerta-Avila**
Lead Presenter | I - 1

I - 10: SDSU VISTA Poster Presentation Delta

3:00 PM – 5:00 PM | Location: Montezuma Hall

UNDERGRADUATE

POSTER VISTA

Speakers

T **Tai Abreu**
Lead Presenter | I - 10

D **David Fitzgerald II**
Lead Presenter | I - 10

F **Floyd Greene**
Lead Presenter | I - 10

R **Roberto Montejo**
Lead Presenter | I - 10

R **Raúl Salgado**
Lead Presenter | I - 10

J **Joe Trejo**
Lead Presenter | I - 10

A **Alex Valencia**
Lead Presenter | I - 10

M **Martin Melendrez**
Lead Presenter | I - 10

A Streamlined System for Introducing TTRPG Systems to New Groups of Players

3:00 PM – 5:00 PM

UNDERGRADUATE

Tabletop roleplaying games (TTRPGs) are a ubiquitous and growing hobby in various communities in the United States. Enthusiasts find comfort and even therapy through the medium of games like Dungeons & Dragons®, Pathfinder®, and Palladium®. However, new TTRPG systems entering the market have extremely high barriers to acceptance within the community. The TTRPG gaming community in general tends to be loyal to the products they already use, eschewing those with which they are unfamiliar. To facilitate the TTRPG community's commitment to play and understand new, complex systems, especially in environments with limited access to technology, a streamlined process is needed. The author's ethnographic research, own experience, and systematic review of the TTRPG research have informed the creation of God Quest Core Rulebook. Operating as a Game Master for over 20 years, and for God Quest for the last 13 years, the author has observed the responses and behaviors of numerous participants. Through these observations, filtered through the lens of the Social Scientific Paradigm, the author has developed a process through which new gamers can be convinced to adopt and embrace a new system, such as God Quest.

POSTER VISTA

Speaker

T **Tai Abreu**
Lead Presenter | I - 10

Navigating Reentry With Resources: The Creation of the RE-3 App

3:00 PM – 5:00 PM

UNDERGRADUATE

There is an issue plaguing our communities in the form of mass incarceration. The phenomenon of systemic mass incarceration is perpetuated by individuals who are returned to prison for reoffending after committing a crime that could have, in many cases, been deterred with the availability of resources. This poster presentation is based on a mobile phone application I created to assist justice impacted individuals navigate the oftentimes tricky landscape of probation and parole after their release from prison. It does this by connecting individuals to much needed resources such as employment, housing, nutrition, clothing and more, making the transition back into society as seamless and transparent as possible. This is what the RE-3 (Reducing Recidivism with Resources) application aims to accomplish. To connect newly released individuals with needed resources and promote a successful transition back into society. The RE-3 application would connect justice impacted individuals released from detention facilities with things they may need. The app would also create a streamlined experience, cutting through the bureaucratic tape that is often difficult or nearly impossible to navigate. The creation of this app relies on the lived experiences of incarcerated individuals, peer reviewed academic journals, a questionnaire conducted inside of prison and the known needs of individuals once released from state custody as well as Maslow's hierarchy of needs. Most people don't commit crimes because they want to, many people commit crimes because they feel they have no other option but to. What the RE-3 app hopes to do is instill a little bit of hope back into our communities with an extended hand of help.

POSTER VISTA

Speaker

D **David Fitzgerald II**
Lead Presenter | I - 10

Human Exploitation & Trafficking Stoppage: Influencing Motivating Productive and Constructive Thoughts

3:00 PM – 5:00 PM

UNDERGRADUATE

The harms of human trafficking negatively impact numerous individuals across the nation. To address and prevent further harm, meaningful practices that rehabilitate those who commit these crimes are urgently needed. Rehabilitation is key in creating society that promotes healing: however, the way our criminal justice system operates fails to achieve the societal goals of rehabilitation. Currently, there are no rehabilitative programs that provide services to people who have committed acts of human trafficking to change behaviors that led them to engage in those activities in the first place. H.E.A.T.S. I.M.P.A.C.T. is a curriculum designed to fill this gap in programming provided at CDCR (California Department of Corrections and Rehabilitation). This rehabilitative curriculum is an 18-week (32-week institutional) program designed to change negative behaviors, rebuild community support, and build coping strategies to minimize urges to commit this type of crimes. H.E.A.T.S. I.M.P.A.C.T. is closing the loop of rehabilitation while creating avenues for those impacted by the justice system and building a better society for everyone.

POSTER VISTA

Speaker

F

Floyd Greene

Lead Presenter | I - 10

Understanding an Incarcerated Person's Pain by Simply Listening Could Assist in Recovery

3:00 PM – 5:00 PM

UNDERGRADUATE

California Department Corrections of Rehabilitation (CDCR) has one of the highest incarceration rates in the world. As of December 2025, 131,303 people are currently incarcerated in California. Although the agency has added Rehabilitation to its name, some inmates speak to how CDCR has yet to help inmates deal with grief. Emotional grief can stem from various factors, such as the impact of a lengthy sentence, loss of a loved one, abandonment and loss of identity. Inmates experiencing grief can struggle to adjust to their surroundings which could lead to chronic mental and physical health conditions, which could lead to additional hurdles in their recovery. Using data from a survey of 22 incarcerated men at Centinela State Prison in Imperial, CA, I analyzed the responses and compiled the respondents' views on how CDCR has handled the grieving process of the incarcerated population. Through my findings, I discovered that the vast majority of the population experiencing incarceration believe that CDCR does not help their need when dealing with grief. In addition, I recommend that CDCR becomes more attentive to the needs of the incarcerated population who want to be heard by someone that is willing to listen without being judged or rushed on to a mental health treatment/label.

POSTER VISTA

Speaker

M

Martin Melendrez

Lead Presenter | I - 10

Art, Art Therapy and Mentoring in Arts: The Many Benefits of Arts in Prisons. A subjective interpretation.

3:00 PM – 5:00 PM

UNDERGRADUATE

Art can be defined by the era or period it was created, a portrait of the social and political landscape at the time. Art can also define the environment in which it is created; the resourcefulness of art mediums and the desperation to defy the oppression of expression and individuality. Be it through drawing, writing, or performance, art has given many confined persons a voice. Art plays a significant role in carceral environments that have limited resources and expressive outlets. The idle mind has always sought stimulation and a medium to be creative for the purpose of self-preservation and mental well-being, which are basic needs of all human beings. This project attempts to express the significance of structured and unstructured art in prisons through personal stories and experiences that illuminate the positive impact on incarcerated people. Creative art, in general, fosters social awareness and positive change. Through subjective interpretation, this project is presented in first, second and third person references. I demonstrate the positive impact art has on incarcerated people in two stages; first, by drawing on my own personal history in prison – my growth and development over time. I highlight the role art played throughout my change and maturity, using pictures of murals and other paintings I have done in Centinela State Prison. Secondly, to demonstrate a common sentiment regarding art in prison, I include testimonials from residents I have taught and mentored in the arts and others who have found their voice in art.

POSTER VISTA

Speaker

R

Roberto Montejo

Lead Presenter | I - 10

The Joy with Living in Art

3:00 PM – 5:00 PM

UNDERGRADUATE

An outlet for communication is vital for individuals' mental health. Art is a form of creative communication, through which individuals can express their feelings, struggles, and experiences. Every person deals with some feelings they may not know how to process and needs to learn how to cope with negative feelings in a positive way

The process of artmaking for me, is where I can find joy in creation, freedom, expression, and power in my own imagination. I enjoy receiving positive feedback from those whom send my art work out to their families, it always makes me smile. Creating art also has proven health benefits. For example, learning how to create art can regulate nervous system of individuals who experience the consequences of trauma and anxiety, such as heightened state of vigilance and increased cortisol levels. Constantly living in that heightened state of anxiety is exhausting, mentally depleting and has negative effects on mental health.

The piece of art being exhibited is an indoor windchime that includes a picture frame. Paper and plastic were used for the construction of the chime. The plastic components come from pack of bread that are served for lunch in prison every day, while the construction paper is a standard art supply. After learning to make small pictures frames through these means, I wanted to challenge myself to create a piece in my own style. Spending time with other people's art and critiquing it has led me to develop my personal aesthetic that I employ when I create.

POSTER VISTA

Speaker

R **Raúl Salgado**
Lead Presenter | I - 10

The Study of How and Why Those with Authority-Power Use the Media as a Tool to Condition People's Self-Concept to Control Their Minds

3:00 PM – 5:00 PM

UNDERGRADUATE

Developing a negative self-concept can result in individuals exhibiting maladaptive behaviors to cope with their insecurities. In system-impacted populations, adopting a gang-identity is a common coping mechanism. This study examines how and why negative self-concept conditioning occurs in minorities and how their resulting identities are exploited by the leading class to oppress them. A survey informed by the integration of Cultivation Theory, Agenda-Setting Theory, Uses and Gratifications Theory, Funds of Knowledge Theory, and lived experience was developed to inquire about 10 incarcerated people's experiences with negative self-concept conditioning. The findings from the survey and Literature Review suggest from ten incarcerated individuals that their self-concepts have been influenced by those negative messages causing insecurities which they adopted a negative identity and maladaptive coping methods. However, the book I wrote called "Learn How to Become Your Ideal Self," addresses this issue to help people change the information they were conditioned by.

POSTER VISTA

Speaker

J **Joe Trejo**
Lead Presenter | I - 10

Criminal Justice System Alleviated through AI

3:00 PM – 5:00 PM

UNDERGRADUATE

This presentation explores the literature on the shortcomings and benefits of AI algorithms in the criminal justice system. There is a possibility that the use of AI algorithms can make our criminal justice system healthier. Mass incarceration is rampant in the U.S. and AI algorithms can help alleviate the extent of the problem. Individuals serving life sentences who are granted parole by California's Board of Parole Hearings have an extraordinarily low recidivism (4%). In contrast, short-term sentenced individuals recidivate at a 67% rate. This may be where the ingredients are for a productive AI algorithm. Extensive research suggests the criminal justice system is biased and suppresses people based on race, age, gender and social class, and my lived experience corroborates these findings. The goal is a balanced justice system that eradicates discrimination and mass incarceration. This project considers whether AI algorithms have helped the system, what influence they have on bias, and the potential for just AI algorithms. Findings indicate that AI algorithms are biased as they are based on data created by inherently biased human beings. The proposed solution is to base the AI algorithms on characteristics California Board of Parole Hearings uses to release individuals as they produce only a 4% recidivism rate.

POSTER VISTA

Speaker

A **Alex Valencia**
Lead Presenter | I - 10

I - 11: Biological and Agricultural Sciences (U/G) 2

3:00 PM – 5:00 PM | Location: Montezuma Hall

UNDERGRADUATE/GRADUATE

POSTER

Speakers

Alexis Saldivar
Lead Presenter | I - 11

Cindy Carranza
Lead Presenter | I - 11

Erin Rushing
Lead Presenter | I - 11

Isaac Torres
Lead Presenter | I - 11

Mark Lopez
Lead Presenter | I - 11

Priyanshi Shah
Lead Presenter | I - 11

Sammy Truong
Lead Presenter | I - 11

Genome scale metabolic model of Haematococcus lacustris

3:00 PM – 4:55 PM

DOCTORAL

Haematococcus lacustris is a unicellular green alga of significant biotechnological interest due to its capacity for producing high-value metabolites, most notably astaxanthin. Despite its importance, genome-scale metabolic representations for this species remain limited. In this study, we reconstructed genome-scale metabolic models for three distinct strains of H. lacustris to enable systematic analysis of their metabolic capabilities and strain-specific differences. The initial draft reconstructions were generated using a curated metabolic model of the green alga Dunaliella salina as a template. Gene–protein–reaction associations were refined through genome annotation, homology-based manual curation, and gap-filling procedures to ensure network connectivity and biomass production under physiologically relevant conditions. To experimentally evaluate and constrain the reconstructed models, we employed BIOLOG Phenotype MicroArray assays to assess carbon and nitrogen source utilization profiles. Experimental growth data were compared with in silico growth predictions, enabling validation of substrate utilization and identification of discrepancies between model predictions and observed phenotypes. Iterative refinement based on BIOLOG results improved model accuracy and predictive performance. These reconstructed and experimentally validated metabolic models provide a foundational platform for studying H. lacustris physiology, comparative metabolism across strains, and metabolic responses to environmental conditions.

POSTER

Speaker

Alexis Saldivar
Lead Presenter | I - 11

Borderline Resistance: Tracking ARGS in the Canal Waters of Imperial Valley

3:00 PM – 4:55 PM

UNDERGRADUATE

Antibiotic resistance is a growing global public health concern and environmental challenge due to the spread of resistant bacteria and antibiotic resistance genes (ARGs) outside clinical settings. Agricultural and urban runoff can introduce ARGs into interconnected water systems, facilitating their transfer to human pathogens and complicating infection treatment. This study examines ARGs in Imperial Valley, a major agricultural region with highly interconnected water systems that convey runoff to the New River, Alamo River, and Salton Sea. Through this project, we aim to answer the following questions: 1) Which ARGs predominate in the canal waters? 2) How do ARGs vary seasonally and spatially? 3) Can findings inform future monitoring and mitigation strategies? The target genes for this project are sul1, intl1, blaCTX-M, qnrA, and Van-AB. Water samples were collected from 10 sites across Imperial Valley, filtered, and processed through DNA/RNA extraction for dPCR and metagenomic sequencing. Preliminary results showed strong variation in ARG presence across the sites. In September samples, intl1 concentrations ranged from 60–1,380 copies/L at most canal sites, suggesting moderate background contamination likely originating from diffuse agricultural sources. A sharp elevation occurred at the New River site (3.78×10^5 copies/L), indicating point-source influence, a common hotspot pattern. Similar trends were observed in October samples, with increases at multiple sites, including ECT2 (1.1×10^5 copies/L). Resistance markers such as qnrA and Van-AB had low prevalence and were often undetectable throughout the sampling period. These results suggest that, compared to other ARG classes, integron-associated resistance may be more prevalent in this region. Overall, the observed levels indicate moderate to high anthropogenic pressure in Imperial Valley canals, with the New River serving as a significant reservoir of ARGs. This project aims to determine the distribution of ARGs in Imperial Valley to reduce ARG prevalence and improve regional water infrastructure.

POSTER

Speakers

Cindy Carranza
Lead Presenter | I - 11

Sammy Truong
Lead Presenter | I - 11

MLH1 Loss as a Driver of Metastasis in Endocrine Therapy–Resistant Breast Cancer

3:00 PM – 4:55 PM

UNDERGRADUATE

Despite improvements in screening and treatment, approximately 40% of patients with estrogen receptor–positive (ER+) breast cancer develop resistance to endocrine therapy, leading to relapse and metastasis. Prior work from the Haricharan Lab has shown that loss of the DNA mismatch repair gene MLH1, a component of the MutL complex, occurs in ~15% of ER+/HER2– tumors and contributes to therapy resistance. This project investigates whether MLH1 loss also promotes metastatic progression. Using xenograft mouse models generated from human breast cancer cells with MLH1 knockdown (shMLH1) or control cells (shLuc), I will assess metastatic spread to the lungs and liver. Immunohistochemistry using an anti–human mitochondria antibody will be performed on formalin-fixed, paraffin-embedded tissues to identify disseminated tumor cells, and metastatic burden will be quantified using FIJI software. Findings from this work will provide insight into the role of MLH1 loss in ER+ breast cancer metastasis and contribute to a broader understanding of mechanisms driving disease progression.

POSTER

Speaker

E

Erin Rushing

Lead Presenter | I - 11

Characterizing the Distribution of the Sicklefin Devil Ray (Mobula tarapacana) in the North Atlantic

3:00 PM – 4:55 PM

UNDERGRADUATE

The distribution of Mobula tarapacana, the sicklefin devil ray, remains largely unknown globally, but particularly so in the western North Atlantic Ocean, among the fastest-warming oceanic regions in the world. We leverage openly available data in a statistical modeling framework to characterize the distributions of M. tarapacana offshore along the U.S. East Coast. Data spanned from 1993 to 2023 (n presences = 422), and were located from the coast of Georgia to offshore Cape Cod, Massachusetts. The developed species distribution model identified that sea surface height (69.9%), bathymetry (9.0%), sea surface temperature (8.1%), and sea surface salinity (2.6%) were the four most influential drivers of suitable habitat for M. tarapacana in the region. Predicted suitable habitat was observed offshore the southeastern United States at all times of year, extending into the Mid-Atlantic Bight, terminating offshore Cape Cod in the summer and autumn months. Areas of suitable habitat were aligned with the continental shelf edge, regardless of season, suggesting biologically productive waters around key physical oceanographic features may play a significant role in shaping observed distributions of M. tarapacana.

POSTER

Speaker

I

Isaac Torres

Lead Presenter | I - 11

Perturb-seq in human brain organoids

3:00 PM – 4:55 PM

MASTER'S

jwli@scripps.edu

POSTER

Speaker

Mark Lopez

Lead Presenter | I - 11

"Geographic Patterns of Structural Genomic Diversity in Humulus lupulus"

3:00 PM – 4:55 PM

MASTER'S

Structural variants (SVs) play a crucial role in shaping genomic diversity and agronomic traits in crops, yet they remain under-investigated in most plant species. While single-nucleotide polymorphisms have been extensively studied, larger structural changes, including deletions, duplications, inversions, and translocations, can have profound effects on phenotype through alterations in gene dosage and regulatory modifications. Hops (Humulus lupulus var. lupulus), a diploid perennial species of economic and cultural importance in brewing, provides an opportunity to examine structural genomic variation across geographic populations. We analyzed 40 hop accessions representing five continental groups (Europe n=21, North America n=10, Asia n=4, Oceania n=3, Africa n=2) grown under common greenhouse conditions. Given that over 70% of the hop genome consists of repetitive sequences, we soft-masked the reference genome using REpeat Detector, identifying 79.83% repeat content. We employed the SaVor pipeline, integrating three established SV callers (Lumpy, Delly, and Wham) to identify high-confidence structural variants, including deletions, duplications, and inversions across all samples. This study will provide insights into structural genomic diversity in hops with implications for breeding and crop improvement.

POSTER

Speaker

P

Priyanshi Shah

Lead Presenter | I - 11

Identification of AMR and ARGs in Waterways of Imperial Valley through Sediment

3:00 PM – 4:55 PM

UNDERGRADUATE

Antimicrobial resistance (AMR) is a critical global public health threat a driven by antibiotic overuse of antibiotics in humans and veterinary medicine, leading to the environmental dissemination of antibiotic resistance genes (ARGs). These bacteria with antibiotic resistance genes (ARGs) contaminate waterways and stay within sediment that store ARGs for long durations, increasing risks to public health. In agricultural regions, ARGs introduced via manure or runoff can persist in sediments and contaminate waterways, facilitating transfer to pathogens through food chains or direct exposure.

Imperial Valley is one of California's largest contributors to agriculture, supplying the United States with resources, features interconnected irrigation canals prone to runoff contamination. Enhanced surveillance is essential to assess ARG prevalence, seasonal/spatial variation, and potential sources.

Sediment samples were collected from ten sites across Imperial Valley during two sampling sessions under varying weather conditions. These samples were extracted for DNAand quantified using digital polymerase chain reaction (dPCR) to detect specific ARGs, abundance, and possible sources of contamination.

Preliminary dPCR results revealed a strong presence of class 1 integron-integrase gene (intl1), a marker for antibiotic resistance, in all samples, with a range from 10.7 x 103 to 231.05 x 103 gc/g sediment , with one site exhibiting high enrichment 24.1 x 105 gc/g sediment. The vancomycin resistance gene (van A/B), was targeted alongside intl1, but was undetectable

across all samples.

These findings indicate moderate to high intl1 abundance—consisten with integron-mediated resistance in anthropogenically impacted sediments—while the absence of vanA/B suggests limited dissemination of high clinical-risk vancomycin resistance in this area. ARGs will allow for tracking contamination sources and implementing prevention methods. Ongoing metagenomic sequencing will further characterize ARG diversity and potential hosts.

POSTER

Speaker

S **Sammy Truong**
Lead Presenter | I - 11

I - 12: Health Nutrition and Clinical Sciences (U/G) 2

3:00 PM – 5:00 PM | Location: Montezuma Hall

UNDERGRADUATE/GRADUATE

POSTER

Speakers

A **Andrew Salcedo Alvarez**
Lead Presenter | I - 12

E **Emily Hernandez Rincon**
Lead Presenter | I - 12

P **Paulin Vaughn**
Lead Presenter | I - 12

S **Selena Montejano**
Lead Presenter | I - 12

O **Olivia Lappin**
Lead Presenter | I - 12

Therapeutic Alliance as a Core Ingredient in Adult Stuttering Treatment: An Observational Study

3:00 PM – 4:55 PM

UNDERGRADUATE

Stuttering is a chronic neurodevelopmental disorder marked by repetitions, prolongations, and blocks. Because spontaneous recovery usually occurs only in early childhood, adults who stutter must learn to manage, rather than eliminate, its impact. Current perspectives emphasize that reductions in stuttering frequency alone do not define successful therapy; meaningful outcomes include reduced struggle, greater communication confidence, and improved quality of life. However, the specific therapeutic ingredients that lead to these outcomes remain unclear. Across psychotherapy and emerging work in speech-language therapy, the therapeutic alliance—shared goals, collaborative tasks, and a strong interpersonal bond—has been identified as a major predictor of treatment success. Research in stuttering therapy echoes this, yet the moment-to-moment clinician behaviors that build and sustain this alliance are not well understood.

This prospective observational study aims to identify the verbal and nonverbal behaviors that support a strong therapeutic alliance and effective treatment outcomes in adults who stutter. Video-recorded sessions from two clinician–client pairs will be coded using a rubric informed by the Therapeutic Relationship Coding System (TRCS) and research on alliance microdynamics. Client perceptions of alliance will be measured using the Working Alliance Inventory (WAI-P). Treatment outcomes will be assessed pre- and post-therapy with the Overall Assessment of the Speaker's Experience of Stuttering (OASES-A) and the S-24 scale, and client factors such as Readiness for Positive Change and Locus of Control of Behavior will also be evaluated. The study will analyze how the timing and frequency of relational behaviors—such as expressing optimism, validating success, negotiating goals, and requesting feedback—relate to alliance strength and functional outcomes. Findings will help identify core therapeutic ingredients that support meaningful behavioral, emotional, and experiential change, ultimately informing clinical training and improving stuttering intervention.

POSTER

Speakers

O **Olivia Lappin**
Lead Presenter | I - 12

J **Jessica Kwasny**
Co-Presenter | I - 1

Psychometric Validation of a Church Leadership Support Measure

3:00 PM – 4:55 PM

MASTER'S

Leadership support is a key factor in the successful implementation of evidence-based interventions (EBIs) within organizational settings. However, the absence of validated measures for assessing leadership support limits understanding of its impact on the adoption and success of health programs, particularly in faith-based organizations (FBOs). Given the unique context of churches, research is needed to develop valid measures of church leadership support to enhance the reach of community health EBIs. This study sought to validate a measure of church leadership support tailored to churches implementing EBIs. Data was drawn from the Faith in Action study, a cluster-randomized trial implementing a faith-based physical activity EBI for Latinas. Following exploratory factor analysis (EFA) that identified a two-factor structure, a separate subsample (N = 199) was used to conduct a confirmatory factor analysis (CFA) of the 10-item leadership support measure using weighted least squares estimation for categorical indicators. Baseline survey data assessed leadership support for implementation of the EBI at participants' churches. The CFA supported a two-factor model with excellent fit to the data ($\chi^2(34) = 47.04$, $p = .06$; RMSEA = .04; CFI = .99; SRMR = .05). The first factor, labeled Leadership Behavior, consisted of five items ($\omega = .87$), with standardized factor loadings ranging from .65 to .88. The second factor, labeled Level of Support, included five items ($\omega = .91$), with standardized loadings ranging from .58 to .92. The two factors were strongly correlated ($r = .79$). The CFA results indicate that a two-factor model of church leadership support fits well and has good psychometric properties. Future studies should explore hierarchical models of church leadership support to determine whether a single-factor model best predicts outcomes. This measure fills an important research gap by validating a scale for assessing predictors of implementation outcomes in FBOs using CFA.

POSTER

Speaker

A **Andrew Salcedo Alvarez**
Lead Presenter | I - 12

Effectiveness of Patient Navigation in Improving Access to Mental Health Services for Mood Disorders

3:00 PM – 4:55 PM

MASTER'S

Background: Mental Health Patient Navigation (MHPN) is a barrier-focused, patient-centered intervention designed to improve access to mental health services for individuals living with mood disorders such as depression and or anxiety. Individuals with a mood disorder (IWAMD) often face significant structural, interpersonal, and systemic barriers that prevent them from seeking, initiating, or continuing mental health care. Although patient navigation (PN) has been widely studied in cancer care, the application of MHPN in mental health settings remains underdeveloped. There has not been a published systematic review that synthesizes evidence on the effectiveness of clinical, non-clinical, or hybrid MHPN models in improving access to mental health services among individuals with mood disorders. This gap highlights the need for a comprehensive, up-to-date systematic review of MHPN interventions.

Purpose: The objective of this systematic review is to assess the effectiveness of clinical, non-clinical, and hybrid (MHPN) interventions in improving initiation of and adherence to mental health services among individuals with mood disorders

Methods: Studies were considered for inclusion if they were dissertations, reports, conference abstracts, or peer-reviewed publications. Following a protocol, two reviewers independently screened titles, abstracts, and full-text papers using pre-defined eligibility criteria. Studies were required to report rates of adherence to or uptake of mental health services to be included. Data extraction was conducted using a standardized abstraction sheet.

Results: The database search identified 1,294 articles, of which 14 studies met the inclusion criteria after full-text review. Across these studies, MHPN interventions widely varied in navigator background, training, and resources. In general, studies reported improvements in initiation of mental health services, adherence to treatment, and engagement with follow-up care. There were limitations in the studies, including small sample sizes and inconsistent outcome reporting.

POSTER

Speaker

E

Emily Hernandez Rincon

Lead Presenter | I - 12

Effects of Dried Prunes on Calcium Retention and Bone Health in a Rat Model of Osteoporosis

3:00 PM – 4:55 PM

MASTER'S

Osteoporosis is a progressive bone disorder characterized by the deterioration of bone tissue. Prunes have revealed bone restorative properties, but the perturbation of calcium utilization remains unclear. The objective is to evaluate the acute and chronic effects of 15% prune intervention on calcium metabolism and inflammation markers in an animal model of osteoporosis using 45Ca radioisotope tracer. Eleven-week-old, ovariectomized (OVX) or orchidectomized (ORX), Sprague Dawley rats (n=52) were divided into two groups within their sex; (1) Control (-Con)(n=13), polyphenol-free, purified diet; (2) Prune (-15%)(n=13), 15% prune diet. Prune intervention lasted 21 days and two net calcium balances were performed. Rats were dosed 45Ca during the second balance. Fecal, urine, and blood samples were collected during balance. At study completion, the following samples were collected; bilateral femurs, bilateral kidneys, vertebrae L1-L5, 10cm of duodenum mucosa. Samples were collected for bone, kinetic, gene expression analyses. A student's t-test with a P <0.05 cutoff was used for data analysis. ORX-15% had higher calcium retention and absorption than ORX-Con during acute intervention (P<0.05). OVX-15% and ORX-15% had higher urinary calcium excretion than OVX-Con in acute chronic intervention (P<0.05). Fecal calcium was lower in ORX-15% than ORX-Con in acute intervention (P<0.05). The volume of vertebrae L1-L5 was higher in OVX-15% than OVX-Con (P<0.05). The volume of vertebra L3 was higher in ORX-15% than ORX-Con (P<0.05). The density of vertebrae L1-l5 was lower in ORX-15% and OVX-15% than controls (P<0.05). Inflammatory markers of Rela (AU) in the duodenum were lower in OVX-15% and ORX-15% than controls (P<0.05). This study reveals prune improves calcium metabolism during acute intervention, and it may increase trabecular turnover rate. Evidence of decreased inflammatory markers in the duodenum and kidney due to prune intervention. These findings support prune as a potential dietary intervention to improve bone health and calcium absorption osteoporotic conditions.

POSTER

Speaker

P

Paulin Vaughn

Lead Presenter | I - 12

Acculturation and Socioeconomic Influences on Hypertension Risk Among Latino Population in the U.S.

3:00 PM – 4:55 PM

UNDERGRADUATE

Background: Hypertension is one of the most prevalent chronic diseases in the United States(U.S.);Latinos have higher rates of hypertension than non-Latino whites. Although both acculturation and socioeconomic status (SES) have been separately linked to hypertension, limited research has examined their combined influence on Latino populations. The extent to which acculturation functions as a risk or protective factor for developing hypertension may vary by SES. This study will examine whether SES moderates the relationship between acculturation and hypertension risk among Latinos. Methods: A sample of churchgoing Latinas in San Diego (N=XX) was recruited from a faith-based physical activity promotion intervention and completed surveys regarding their demographics (age, ethnicity), acculturation (language preference), SES (income), and self-reported hypertension diagnosis (Get Active Questionnaire). Hypertension will be modeled using multivariable logistic regression. Acculturation (English vs. Spanish language preference) and socioeconomic status (income level) will be entered as main effects, along with an acculturation × SES interaction term to test whether SES moderates the association between acculturation and hypertension. Models will adjust for relevant demographic covariates. Expected Results: It is expected that socioeconomic status will moderate the association between acculturation and hypertension risk. More specifically, higher acculturation (English language preference) will be associated with higher odds of hypertension among Latinas with lower levels of SES, with weaker or no differences observed among Latinas with higher levels of SES. Discussion: Understanding this association between cultural and socioeconomic factors in affecting hypertension factors is vital for informing prevention and treatment strategies for Latino populations in the U.S. This knowledge can inform public health interventions that reduce structural barriers and healthcare disparities, advancing health equity through culturally responsive hypertension prevention and treatment.

POSTER

Speaker

S **Selena Montejano**
Lead Presenter | I - 12

I - 13: Behavioral and Social Sciences (U/G) 1

3:00 PM – 5:00 PM | Location: Montezuma Hall

UNDERGRADUATE/GRADUATE

POSTER

Speakers

Alejandra Mendoza Diaz
MSW Intern | San Diego County

C **Carissa Bubien**
Lead Presenter | I - 13

C **Caroline Gillies**
Lead Presenter | I - 13

C **Courtney Haupt**
Lead Presenter | I - 13

H **Hayley Durrant**
Lead Presenter | I - 13

J **Jimmy Vazquez**
Lead Presenter | I - 13

L **Layla Jones**
Lead Presenter | I - 13

S **Sahara Estrada Hernandez**
Lead Presenter | I - 13

Vulnerabilities of Foster Youth: Associations with Commercial Sexual Exploitation

3:00 PM – 4:55 PM

MASTER'S

Human trafficking and commercial sexual exploitation of children (CSEC) disproportionately affect youth involved in the child welfare system. Foster youth face elevated vulnerability due to cumulative trauma, abuse, placement instability, housing insecurity, and runaway experiences. While existing literature documents these risks, less is known about foster youth who transition into higher education or those with migration and border-related vulnerabilities.

This study examines whether involvement in the child welfare system is associated with increased risk of human trafficking or commercial sexual exploitation among college students compared to non foster care involved peers. Guided by a socioecological framework, the study explores how demographic, social, and structural factors, including gender, race/ethnicity, LGBTQ+ identity, immigration history, housing instability, substance use, mental health status, criminal justice involvement, and prior sexual abuse, shape vulnerability to exploitation.

Using a mixed-methods design, quantitative data were collected via self-administered online surveys from 971 college students across 12 campuses in San Diego County and the Imperial Valley. Descriptive statistics, bivariate analyses, and logistic regression models are used to identify predictors of trafficking vulnerability and to compare foster and non-foster youth. Qualitative policy reviews and practitioner insights contextualize child welfare screening practices and intervention gaps.

Findings aim to inform trauma-informed, culturally responsive prevention and intervention strategies across child welfare and higher education systems, highlighting the need for targeted, cross-system supports to reduce exploitation risk among foster youth transitioning into college.

POSTER

Speaker

Alejandra Mendoza Diaz

MSW Intern | San Diego County

Response Initiation in Stuttering: A Meta-Analysis of Reaction Times

3:00 PM – 4:55 PM

UNDERGRADUATE

The underlying causes of developmental stuttering remain elusive, despite decades of research across cognitive, linguistic, motor, and neurobiological domains. Stuttering has long been linked to difficulties initiating responses. This meta-analysis synthesizes findings from both child and adult populations to determine whether response initiation is systematically slower in people who stutter and to identify key moderators of this effect. Reaction times from both speech and nonspeech tasks are analyzed to examine whether differences between people who stutter and those who do not are task-specific or reflect broader, domain-general processing differences. Included tasks span linguistic, cognitive, and sensorimotor domains. Findings are interpreted in the context of current theoretical models of stuttering that relate to linguistic encoding, motor planning and execution, and cognitive-sensorimotor integration. The data was extracted by coding for moderating variables including task category, stimulus type, and response modality. Two reviewers independently extracted reaction-time summary statistics. The pattern seen in the findings show a robust slowing of reaction times in speech and voice tasks as well as larger effects in language-based non-speech tasks. The findings support an integrated view that motor and basal-ganglia mechanisms likely gate timing and sequencing, but the primary driver of delayed initiation appears to be speech and language processes, with motor differences most visible in language contexts. This work provides a comprehensive analysis of the temporal dynamics of response initiation in stuttering and offers direction for future research on underlying mechanisms.

POSTER

Speaker

C

Carissa Bubien

Lead Presenter | I - 13

Moralizing Punishment: The Neglect of Reproductive Justice via Abortion “Morality”

3:00 PM – 4:55 PM

UNDERGRADUATE

Contemporary American society is plagued by contention when it comes to the debate of abortion rights, a controversy that reduces pro-choice abortion rhetoric to evaluations of women’s morality, competence, and complicity with social expectations, thereby minimizing the scope of women’s opinions regarding their own bodies. By examining reproductive justice, this work exemplifies the greater issue of framing a reality that profoundly misrepresents the intricacies ingrained in women’s lived experiences. The pro-life movement’s appeal to “morality” disregards the inequality and medical dangers women face from limited access to safe abortions, cultivating dangerous conditions for reproduction by enabling state actors’ intrusion into the private sphere to oversee the regulation of women’s reproductive choices.

This piece argues that the portrayal of abortion as a debate of proper ethicality or values-based decision-making is a fictitious illusion. Reproductive justice as a framework reveals that anti-abortion politics sustain structural inequality for women under the mask of government intervention as necessary to protect healthy motherhood for future children. The construction of abortion as a “moral” debate serves less to cultivate genuine feminist inquiry into the ethicality and quality of women’s shared experiences and instead legitimizes state governance that compromises reproductive justice criteria: one’s right to have a child, not have a child, or parent a child within healthy, sustainable conditions. The magnitude of anti-feminist rhetoric and “pro-life” perspectives manifests punitive consequences, criminalizing bearing reproductive anatomy and portraying women’s reproductive sovereignty as a detriment to American family values, patriarchal hierarchies, and gender role expectations.

POSTER

Speaker

C

Caroline Gillies

Lead Presenter | I - 13

Heritage Language Recovery & the Future of Bribri

3:00 PM – 4:55 PM

MASTER'S

This paper seeks to explore and evaluate Indigenous language revitalization efforts for the Bribri language in Costa Rica. Considering Indigenous languages as heritage languages (HLs), this work reviews measures taken to promote and maintain heritage language learning (HLL) and language use following the turn toward interculturalism across Latin America in the 1990s. Centuries of colonial rule have resulted in widespread language loss for many Indigenous peoples of the Americas, and HLL represents a powerful form of Indigenous resistance in reclaiming and maintaining their Indigenous cultures. This paper explores language policy and action at the constitutional, legislative, institutional, and grassroots levels, including youth involvement, and reframes language revitalization through Fitzgerald's (2017) holistic concept of language recovery. Finally, this literature review addresses the absence of thorough research about HLL and language revitalization in Costa Rica and the relevance for studying the linguistic context of the Bribri language.

POSTER

Speaker

C **Courtney Haupt**
Lead Presenter | I - 13

EVALUATING CEASEFIRES AS PEACEBUILDING TOOLS: AN EMPIRICAL ANALYSIS OF POST-CEASEFIRE CONFLICT DYNAM

3:00 PM – 4:55 PM

UNDERGRADUATE

This paper examines the implications, magnitude, puzzling nature, and thus the instrumental role ceasefires play in conflict zones. Furthermore, this study investigates a central question: Do ceasefire agreements reduce violence in conflict zones, specifically in the Libyan Civil War between 2011 and 2020? Findings reveal that ceasefire implementation does not set forth durable foundations for peacebuilding, but rather that violence in Tripoli does not decrease post-implementation, and violence persists at baseline levels. Thus, no tangible predictive relationship exists between ceasefires and reduced violence. Linear regression models show that

there is no statistically significant correlation between ceasefires and a reduction of violence. In essence, the negative binomial regression reinforces the regression models. The data suggest that ceasefires occur in the midst or immediately after spikes in conflict, not before. The reactive nature of ceasefires post-implementation indicates violence remains steady or increases slightly,

with brief decreases in violence as temporary or statistically not significant. This appears as general fluctuations rather than as evidence of successful de-escalation strategies. The Libyan case highlights the harsh realities of establishing peace via the innate pitfalls of ceasefires– while state actors may employ the strategy to foster peace, empirical evidence suggests this avenue is employed as a reactive political gesture that merely recognizes short-term needs for stabilization efforts.

POSTER

Speakers

H **Hayley Durrant**
Lead Presenter | I - 13

C **Caroline Gillies**
Lead Presenter | I - 13

Limited Access to Care: Immigrant Youth Narratives of Homelessness and Survival

3:00 PM – 4:55 PM

MASTER'S

Youth experiencing homelessness (YEH) face health, social, and structural inequities that shape their access to care. Although existing research addresses mental health needs, substance use, and inaccessible service systems among YEH, immigrant and Spanish-speaking youth remain largely underrepresented from the literature. This underrepresentation demonstrates how language, culture, and immigration status intersect with homelessness to shape youth's interactions with social service systems. This study addresses this gap by examining how YEH in San Diego describe their experiences navigating social service systems, focusing on Spanish-speaking immigrant youth.

This qualitative study uses secondary data from a community-based participatory research project conducted in partnership with San Diego State University and San Diego Youth Services. The sample includes 32 semi-structured interviews with youth ages 12-26, recruited through shelters and drop-in centers. Interviews explored housing experiences, service navigation, and coping strategies including substance use. Data analysis is guided by applied thematic analysis and a health equity-focused analytic framework, drawing on structural impacts, culturally and linguistically responsive practice, trauma-responsive care, and youth participatory action research.

POSTER

Speaker

J **Jimmy Vazquez**
Lead Presenter | I - 13

The Effects of Bereavement on Mental Health and Life Skill Development Among At-Risk Adolescents

3:00 PM – 4:55 PM

UNDERGRADUATE

Youth who experience the death of someone close to them may experience bereavement. Bereaved youth present with a variety of mental health challenges that negatively affect their academic and occupational functioning. Youth at risk for other adverse childhood experiences (ACEs; e.g., family violence and dysfunction) are at an increased risk for experiencing the death of someone close to them and experiencing more deaths is likely to have more severe mental health impacts. Few studies have examined the impact of an accumulation of deaths on youths' life skills, academic success, and professional development among at-risk youth while accounting for other ACEs. The present study used longitudinal data to examine whether the number of deaths youth experienced increased their mental health symptoms, academic and occupational functioning during late adolescence. Participants were 1354 caregiver-youth dyads who participated in the Longitudinal Studies of Childhood Abuse and Neglect from when youth were born until they were 18 years old. Indicators of youths' ACEs were collected from youth, caregiver, and CPS reports during biannual interviews. Caregivers also reported whether anyone close to the youth had died in the past year at each interview and the youth's mental health symptoms when they were 16. Youth reported their academic and occupational functioning when they were approximately 18 years old. Regression analyses identified that, after accounting for ACEs, youth who experienced more deaths had significantly more anxious/depressed symptoms at age 16, ? = .08, p = .017, and poorer social development, ? = -.08, p = .018, and overall life skills, ? = -.07, p = .033, at age 18. Findings highlight the importance of providing mental health services for youth who have experienced the death of someone close to them, as these experiences add to the negative impacts on mental health and occupational functioning caused by other ACEs.

POSTER

Speaker

Layla Jones
Lead Presenter | I - 13

Housing Insecurity and Its Impact on the Wellness of Students of Color in Higher Education

3:00 PM – 4:55 PM

UNDERGRADUATE

Housing insecurity is a critical issue in higher education and disproportionately affects college students of color due to intersecting structural and racial inequities. Prior research has demonstrated that housing instability negatively influences academic outcomes and overall wellness among this population. The proposed study seeks to examine how housing insecurity and experiences of being unhoused influence multiple dimensions of wellness among students of color enrolled in institutions of higher education in San Diego County.

This study will employ a mixed-methods design guided by Critical Race Nepantlera Methodology, Theories of the Flesh, and Walking Plática methodology. Qualitative data will be collected through focus group interviews to explore participants' lived experiences of housing insecurity and its impact on mental, physical, emotional, and academic wellness. Findings from the qualitative strand will inform the development of a quantitative survey designed to identify patterns and relationships between housing instability and wellness outcomes. The study population will consist of currently enrolled students of color from community colleges and four-year public universities in San Diego County who have experienced housing insecurity or homelessness.

The anticipated outcomes of this study include increased understanding of the structural and institutional factors contributing to housing related wellness disparities. Findings are expected to inform the development of trauma informed, culturally responsive campus supports and equity focused policy interventions aimed at addressing basic needs insecurity in higher education.

POSTER

Speaker

Sahara Estrada Hernandez
Lead Presenter | I - 13

I - 2: Business, Economics & Public Administration (U/G) 1

3:00 PM – 5:00 PM | Location: Montezuma Hall

UNDERGRADUATE/GRADUATE

POSTER

Speakers

Ayoob Abed
Senior Tax Specialist | H&R Block

Bryan Salcedo
Lead Presenter | I - 2

Isabelle Vanderby
Lead Presenter | I - 2

Joaquin Medina
Lead Presenter | I - 2

Jordan Ardaiz
Lead Presenter | I - 2

Nitya Remias
Lead Presenter | I - 2

Sadie Moore
Lead Presenter | I - 2

Landon Larkin
Co-Presenter | I - 2

Presentation Withdrawn

3:00 PM – 4:55 PM

MASTER'S

POSTER

Speaker

Presenter Withdrawn

Tax Year 2025 vs Tax Year 2026 Form 1040: Taxpayer-Facing Changes Under H.R. 1 (Pub. L. 119-21)

3:00 PM – 4:55 PM

MASTER'S

This presentation explains the individual-income tax changes enacted by OBBBA that first apply to the 2026 tax year (returns filed during the 2027 season). It clarifies what continues, what sunsets or reverts, and how transitional and inflation-indexed rules operate. Covered topics include filing status and bracket updates; the standard deduction and itemized deduction interactions (including SALT and charitable rules); child and dependent credits; education incentives; energy-related credits; treatment of pass-through income (QBI and wage/property limits); and interactions with the NIIT and self-employment tax. The session also addresses withholding, estimated-tax safe harbors, documentation, and due-diligence checkpoints relevant to 2027 compliance.

To make the rules actionable, the session uses concise “before/after” comparisons and four short case studies—a single W-2 earner, a dual-income household with children, a sole proprietor claiming QBI, and a retiree with Social Security and IRA distributions—to highlight liability drivers, phaseouts, and common planning levers.

Attendees will receive a one-page checklist and a 2026 timeline for actions such as adjusting withholding, timing deductions and credits, coordinating education and energy incentives, and aligning entity and retirement-plan choices. The goal is clarity and readiness: equip individuals and advisors to anticipate 2026 liability under OBBBA, avoid penalties, and file accurate, well-supported 2027 returns.

POSTER

Speaker

Ayoob Abed
Senior Tax Specialist | H&R Block

Healthcare Professionals’ Knowledge, Experience, & Intentions to Use Health Literacy Practices

3:00 PM – 4:55 PM

UNDERGRADUATE

Limited Health literacy (HL) remains a persistent barrier to safe, effective care in rural border communities such as Imperial County (IC), CA, where patient materials often exceed recommended reading levels and communication needs are complex. Healthcare professionals’ (HCP) awareness and use of health literacy-informed practices are critical to supporting equitable, comprehensive care for individuals with low HL. The purpose of this study is to evaluate HCP’s knowledge, experience, and intentions to use HL practices in the delivery of future healthcare education and identify professional development opportunities for future training. Using a cross-sectional online survey incorporating the HLSBI, HLKES-2, we aim to identify current knowledge, experiences, and intentions to use HL practices of HCPs serving patients across a variety of traditional and non-traditional healthcare settings in IC. Through convenience and snowball sampling techniques, we plan to recruit 150 HCPs who provide healthcare education to residents in IC. Planned data analysis will include descriptive statistics, regression, and t-tests to examine relationships for comparisons and correlations between variables. We anticipate identifying limited health literacy knowledge and practice-readiness among HCPs in IC, highlighting persistent gaps in communication and healthcare education. These findings are expected to inform targeted future professional development opportunities designed to integrate HL best practices into the delivery of patient education to strengthen communication and patient engagement. Results may also underscore the importance of integrating HL and bias into healthcare professional curricula to promote equitable, patient-centered care. Future initiatives may leverage these findings to guide patient-centered, community-based strategies that enhance communication and health outcomes in underserved border areas.

POSTER

Speaker

Bryan Salcedo
Lead Presenter | I - 2

Justice in Marketplace Service Recovery: AI Agents vs. Humans

3:00 PM – 4:55 PM

UNDERGRADUATE

Online marketplaces like Amazon, Etsy, and eBay increasingly rely on autonomous artificial intelligence (AI) agents instead of humans to resolve post-purchase customer problems, a critical theoretical and managerial issue. Integrating theory on AI agents with theories of service failure recovery, we explore how agent type influences customer satisfaction and experience perceptions in online marketplace failure recovery.

Justice theory suggests that customers evaluate service recovery experiences based on outcomes and on fairness, service provider competence, and interpersonal treatment. Research on AI agents highlights important differences between humans and AI agents in reasoning, emotional expressiveness, and perceived moral agency. We theorize that customers will perceive human agents as more just and more capable of resolving online purchasing problems than AI agents. We propose that these differences are shaped by the level of empathy exhibited by the agent and the number of interaction steps required to resolve the problem.

We predict that greater expressions of empathy enhance perceptions of fairness and agent ability, these effects are stronger for human agents. Service recovery processes involving multiple interaction steps heighten customers' sensitivity to justice-related cues, thereby mitigating the advantage of human agents over AI agents in customer perceptions. These perceptions drive customer satisfaction with the service recovery experience and impact purchase intentions.

We test these predictions with controlled online experiments using a consumer panel. Participants were randomly assigned to scenarios where an AI agent or a human agent resolved a problem involving an online marketplace purchase. The experiments also manipulated empathy (high versus low) and interaction complexity (many versus few steps). Consistent with our predictions, the results show that human agents are perceived as significantly more fair and capable than AI agents, leading to higher customer satisfaction and positive perceptions of the failure recovery experience.

POSTER

Speakers

Isabelle Vanderby

Lead Presenter | I - 2

Jordan Kolinas

Co-Presenter | I - 2

Linda Vista: Target of Gentrification and Profiteering

3:00 PM – 4:55 PM

MASTER'S

This project investigates the drivers , impacts, and potential solutions to gentrification-driven displacement in Linda Vista, an historically working-class San Diego neighborhood. Linda Vista was established as the largest housing project in the 1940s to accommodate workers for the defense industry during WWII, and it was the only development north of the Interstate 8 that allowed people of color as residents (Killory, 1993). Linda Vista's vulnerability to gentrification is rooted in this history and its long-standing role as a community for low-income residents and immigrants. Today, rising housing costs and speculative investment are destabilizing the neighborhood. SANDAG data indicate that approximately half of Linda Vista residents are very low-income and that many face elevated displacement risk due to extreme housing cost burdens.

Using November 2025 data compiled by a University of San Diego research team, this project analyzes ownership patterns, affordability levels, and displacement. The dataset focuses on multifamily rental properties, excluding single-family rentals, room rentals, and several student-oriented complexes—limitations that may underrepresent the full scope of housing insecurity. About 65% of local apartment units are corporate owned. These ownership patterns correlate with steep rent increases and eviction practices, including documented illegal evictions.

Such practices accelerate the displacement of low-income families. Only 11% of local complexes are deed-restricted affordable housing, with just 5% available to families.

Preliminary findings suggest that Linda Vista's proximity to major economic centers, transit-oriented development incentives, and investor interest in historically undervalued neighborhoods have intensified gentrification pressures. Policy responses such as strengthened inclusionary zoning, preservation of older rental stock, and strategic acquisition of properties by affordable housing providers are essential for preventing further displacement.

POSTER

Speaker

Joaquin Medina

Lead Presenter | I - 2

The Welfare State and Entrepreneurial Ecosystems: Trade-offs and Impacts

3:00 PM – 4:55 PM

MASTER'S

This paper investigates how key pillars of the welfare state relate to entrepreneurial outcomes across countries. This study aims to evaluate the apparent paradox that welfare states can produce high levels of innovation and entrepreneurship, by examining whether public spending on education and healthcare supports entrepreneurship. Drawing on literature on culture, institutions, and welfare states, two hypotheses are formulated. First, that higher public spending on education, and second, that higher public spending on healthcare (as a percentage of GDP) are each positively associated with entrepreneurial outcomes. Using data from the World Bank, the analysis examines national spending on education and healthcare to firm density (number of firms per 1,000 inhabitants) as a measurement for entrepreneurship, and applies correlation to assess these relationships. The findings do not support a positive association between education spending and entrepreneurial outcomes, instead, a slight negative correlation is observed. In contrast, healthcare spending is positively and significantly correlated with firm density, suggesting that universal and generous healthcare might lower the risks of self-employment in ways that encourage entrepreneurship. While the analysis is constrained by crude measures of both welfare state dimensions and entrepreneurship, the results suggest that the relationship between welfare state and entrepreneurship is not simple. It indicates that specific welfare components, particularly healthcare, may be directly entrepreneurship-enhancing while others may have little or even negative impact.

POSTER

Speaker

Jordan Ardaiz

Lead Presenter | I - 2

How much do public restrooms cost to build and maintain? A San Diego Case Study

3:00 PM – 4:55 PM

HIGH SCHOOL - WORKING WITH SDSU FACULTY

Introduction / Overview / Research Questions

This research project investigates the cost of building and maintaining public restrooms in San Diego. The central research questions are: how much does it cost to construct a restroom, what are the ongoing maintenance and operational expenses, and which factors most significantly drive these costs, such as location, security, and upkeep requirements?

Research Methods

To answer these questions, I have analyzed existing studies, reports, and municipal data, including well-known research such as the Berkeley public restroom cost study. I compared cost estimates across different cities and contexts, analyzed construction versus long-term maintenance expenses, and examined how variables like location, staffing, cleaning frequency, and security measures influence total cost.

Preliminary Findings

Preliminary findings indicate that the cost to build and maintain a public restroom varies widely depending on location and design. While construction costs can be high, maintenance and security consistently emerge as some of the largest ongoing expenses. Studies suggest that staffing, frequent cleaning, vandalism prevention, and security monitoring often exceed initial expectations and play a major role in long-term affordability.

Potential Implications and Future Research

This research highlights that public restroom projects should be evaluated not only by upfront construction costs but also by sustainable long-term maintenance planning. Understanding these cost drivers can inform more realistic city budgeting, better design choices, and policy decisions around public restroom access in San Diego. Future research could focus on comparing different restroom models, analyzing cost-saving design innovations, and evaluating how investment in maintenance and security affects restroom usage and public health outcomes.

POSTER

Speaker

Nitya Remias

Lead Presenter | I - 2

Preparing for an AI-Driven Workforce: Business Students' Perceptions of Career Readiness at SDSU

3:00 PM – 4:55 PM

UNDERGRADUATE

As artificial intelligence (AI) becomes increasingly embedded in modern workplaces, universities face growing pressure to prepare students for careers in an AI-integrated professional environment. This study examines how well San Diego State University (SDSU) prepares Fowler College of Business undergraduate students for post-graduation careers in an AI-driven world, focusing on both curricular preparation and the perceived impact of AI tools on learning. Using a survey-based research design, the study investigates two primary research questions. First, it assesses whether students perceive their business coursework as sufficient preparation for an AI-integrated workplace by examining institutional effectiveness, career readiness, and curriculum relevance. Independent variables include students' exposure to AI-related topics in coursework, the number of business courses requiring AI tool usage, and class standing. Dependent variables measure perceived career readiness, preparedness to use AI in the workforce, and confidence in transitioning to an AI-driven job market. Second, the study explores students' perceptions of AI tools such as ChatGPT and whether they believe these tools hinder, support, or have no effect on their learning and skill development. Key independent variables include frequency of AI use, confidence using AI, and type of AI usage, while dependent variables assess perceived learning quality, perceived hindrance versus support, and confidence in critical thinking, problem-solving, and writing skills. By capturing student perceptions across academic and career dimensions, this research provides insight into how business students are navigating AI integration within higher education. Findings aim to inform curriculum development, instructional strategy, and institutional decision-making to better align business education with the evolving demands of an AI-driven workforce.

POSTER

Speakers

Sadie Moore
Lead Presenter | I - 2

Landon Larkin
Co-Presenter | I - 2

I - 3: Engineering and Computer Science (G) 1

3:00 PM – 5:00 PM | Location: Montezuma Hall

GRADUATE

POSTER

Speakers

Ashley Funk
Lead Presenter | I - 3

Sayali Sanjay Shelke
Co-Presenter | I - 3

Jiali Wang
Lead Presenter | I - 3

Kafil Chowdhury

Mariana Galeano Carvajal
Lead Presenter | I - 3

Mehmet Bagci
Lead Presenter | I - 3

Ramin Sarange
Lead Presenter | I - 3

Tiantian Chen
Lead Presenter | I - 3

Improving YOLOv5 Deep Learning Models for Detecting Homeless Encampments

3:00 PM – 4:55 PM

MASTER'S

This research examines the spatial distribution of homeless encampments in San Diego using deep learning models applied to aerial imagery. Traditional field surveys to assess homelessness are often limited by accessibility, cost, and data timeliness. The mobility of unhoused individuals complicates efforts to monitor their locations and restricts the scope of available data. To address these challenges, I employ high-resolution Hexagon satellite imagery and a YOLOv5 object detection model to automatically identify tent encampments. Once identified, the encampment detections are analyzed through hotspot and regression analyses in relation to socioeconomic data. The current focus of my work is fine-tuning the model and evaluating its accuracy through precision, recall, and F1-score metrics to assess detection performance. I will also use a ROC curve to help visualize the trade-off between finding as many real encampments as possible and avoiding false detections, showing how reliable the model is at different confidence levels. These analyses will not only evaluate the YOLOv5 model's performance but also enable comparison with other models to identify the most accurate and reliable approach. By integrating machine learning with spatial analysis, this study develops a scalable, data-informed approach to monitor shifting encampment patterns. The findings are intended to help local agencies and nonprofit organizations make data-driven decisions about resource distribution and outreach efforts, promoting more equitable and effective responses to urban homelessness.

POSTER

Speaker

A

Ashley Funk

Lead Presenter | I - 3

Advancing Marine Microplastic Monitoring through Deep Learning-Based Image Segmentation

3:00 PM – 4:55 PM

MASTER'S

Microplastic pollution poses significant threats to marine ecosystems and human health, requiring efficient and standardized monitoring within a One Health framework. This study presents the development and evaluation of an artificial intelligence (AI)-driven image segmentation model for detecting microplastics in images collected along the coast line of Sousse, Tunisia, a region particularly vulnerable to high pollution. The dataset includes 1080 images of plastics categorized into classes: HDPE, LDPE, PA, PET, PP, PS, and Others. To ensure reliability with AI analysis, all fragments were first identified, photographed under controlled lighting to capture morphological variability. Using advanced polygon segmentation, the model enables pixel-level annotation and outperforms traditional bounding box methods, especially for irregularly shaped particles. Background subtraction and adaptive thresholds enhance accuracy, reducing false positives. Model performance is evaluated using the Intersection-over-Union (IoU) metric, measuring overlap between predicted segmentations and manually annotated ground truth data. Additionally, it discusses the ecological relevance of identified microplastic types in the regional context, highlighting potential impacts on coastal biodiversity and environmental health. Findings contribute to the growing field of marine pollution monitoring by demonstrating the practical utility and challenges of AI-powered segmentation, supporting future efforts toward scalable, ecologically informed, and standardized microplastic detection methods.

POSTER

Speaker

S

Sayali Sanjay Shelke

Co-Presenter | I - 3

A concentrate-&-destroy strategy enabled by an adsorptive photocatalyst for enhanced destruction of

3:00 PM – 4:55 PM

DOCTORAL

While the use of perfluorooctanoic acid (PFOA) has been restricted, its short chain alternative, perfluorobutanoic acid (PFBA), has gained momentum in recent decade and detected as a common breakdown product of many other PFAS. Consequently, PFBA is widely detected in contaminated waters. Yet, compared with legacy longchain PFAS, PFBA is much less adsorbable to conventional adsorbents and more persistent to common water treatment processes. To this end, we synthesized an adsorptive photocatalyst, Cu/TNTs@AC, Copper doped on activated carbon supported titanate nanotubes and tested it for adsorption and photocatalytic degradation of PFBA. At dosage of 3 g/L, Cu/TNTs@AC removed 96% PFBA (100 μg/L, pH 7.0) within 2 h in batch tests and treated ~7,000 bed volumes of PFBA laden water (50 μg/L, pH 7.0) before breakthrough in fixed bed column runs. Subsequent UV irradiation (254 nm, 9 mW/cm²) achieved 50% defluorination of pre-sorbed PFBA after 4 h (pH 7.0, 48 °C). Addition of 2 mM potassium iodide (KI) and 4 mM peroxymonosulfate (PMS) at pH 9.0 further boosted the defluorination to 75%. Mechanistic study indicates that PFBA was destructed predominantly by photoexcited holes with further degradation by superoxide, hydroxyl, and sulfate radicals, and the resulting intermediates were transformed into ultra-short chain fluorochemicals. Cu/TNTs@AC holds the potential to enable the "concentrate-and-destroy" strategy for more efficient removal and degradation of short-chain PFAS.

POSTER

Speaker

J

Jiali Wang

Lead Presenter | I - 3

Electrochemical Performance of Pristine and PEDOT–Coated Carbon Cloth as Electrodes for Flexible SCs

3:00 PM – 4:55 PM

DOCTORAL

The increasing popularity for flexible and wearable electronic devices has driven the demand for lightweight, efficient, and flexible energy storage solution, highlighting the need for advanced electrode materials. Carbon cloth, composed of interlaced carbon microfibers, exhibits substantial potential as an electrode material for flexible energy storage devices, owing to its inherent flexibility, porosity, and high mechanical strength, derived from its woven structure. However, it still faces inherent limitations such as low specific capacitance and limited wettability. This study exhibits a facile and effective strategy to overcome these limitations by depositing an ultrathin conducting polymer nanolayer of poly(3,4-ethylenedioxythiophene) (PEDOT) on the carbon cloth substrate by oxidative chemical vapor deposition (oCVD) method. The oCVD technique ensures effective preservation of geometric features and retention of active redox sites on carbon cloth while coated with ultrathin and highly conformal PEDOT coating. In this study, we investigated the electrochemical performance of pristine and PEDOT-coated carbon cloth as supercapacitor electrode materials in a redox-active electrolyte, demonstrating a simple and effective strategy to enhance performance by introducing a pseudocapacitive nanolayer onto a double-layer capacitor material. The PEDOT-coated carbon cloth electrode demonstrated enhanced specific capacitance by 2.3 times compared to the pristine carbon cloth, due to the additional pseudocapacitive contribution from PEDOT and enhancing the wettability of carbon fibers. Furthermore, a substantial reduction in the charge transport resistance was also observed for the PEDOT-coated carbon cloth, attributed to the enhanced wettability of carbon fibers.

POSTER

Speaker

Kafil Chowdhury

Towards a Cardiovascular Digital Twin: A Baseline Lumped-Parameter Model with LVAD Coupling

3:00 PM – 4:55 PM

DOCTORAL

Each year in the United States, about 2,500 patients receive an implantable left ventricular assist device (LVAD) for long-term mechanical circulatory support in end-stage heart failure (HF). HF and LVAD performance have been studied using clinical research, animal models, benchtop testing, and computational approaches. However, animal studies can have limited clinical relevance, motivating alternative methods to assess safety and efficacy. Mock circulatory loops (MCLs) are benchtop systems that replicate human cardiovascular hemodynamics and enable evaluation of LVAD performance with native heart function. While useful, MCL studies are time-consuming and costly, and access is often limited. This project aims to create a digital twin of the MCL to enable efficient evaluation of current and novel LVADs using a computational model.

A lumped-parameter model (LPM) developed by Pawar et al. was adopted as the baseline framework and implemented in MATLAB. The circulation was represented as a hydraulic circuit using resistances and compliances, with left ventricular (LV) volume and aortic pressure as the two state variables. An LVAD was incorporated as a constant-flow source from the LV to the aorta to represent fixed-speed support (HeartMate 3 analog). Simulations were performed for a native-heart-only baseline (Q_LVAD = 0) and for LVAD support levels of 3 and 6 L/min, with cardiac phases defined through pressure-based mode switching.

In the baseline case, the model closely matched the reference aortic pressure waveform (RMSE = 2.1 mmHg, r = 0.88). Simulations with constant LVAD flows of 3 and 6 L/min showed increased MAP and aortic flow compared to baseline. Pressure–volume loops exhibited lower end-diastolic and end-systolic volumes and shorter aortic-valve opening, indicating ventricular unloading. These findings confirm expected LVAD effects and demonstrate that the LPM captures key circulatory dynamics. Future work will validate the model against SDSU-MCL experimental measurements and use it to evaluate novel LVAD control paradigms.

POSTER

Speaker

Mariana Galeano Carvajal

Lead Presenter | I - 3

Large Language Models in Health

3:00 PM – 4:55 PM

DOCTORAL

Extracting structured lab results from electronic health records (EHRs) is essential for large-scale clinical research and effective patient care, yet remains challenging due to the unstructured and heterogeneous nature of EHR data. We evaluate large language models (LLMs)—including Phi4, LLaMa-3, and Qwen2.5—across zero-shot, one-shot, few-shot, and fully fine-tuned scenarios, comparing their ability to automatically extract key lab values from unstructured clinical text. Our systematic assessment examines prompt engineering strategies, adaptation methods, and the impact of quantization on inference speed and accuracy for both pre-trained and fine-tuned models.

Notably, LLaMa-3 (8B) with full fine-tuning achieved the highest accuracy (93.79%), while LLaMa-3.3 (70B) performed best in few-shot settings, reaching 89.56% accuracy. We also demonstrate that incorporating additional spirometry data improves the accuracy of asthma severity classification, increasing it from 0.72 to 0.85. These results highlight that carefully designed prompts combined with efficient fine-tuning lead to optimal extraction performance, with model size and quantization levels introducing predictable trade-offs between speed and accuracy. This work offers actionable insights for deploying LLM-driven data extraction pipelines.

POSTER

Speaker

Mehmet Bagci

Lead Presenter | I - 3

Enhancing the Seismic Performance of CLT-to-Concrete Hold-Down Connections through Ductile Anchors

3:00 PM – 4:55 PM

DOCTORAL

This study investigates the influence of anchor bolt hysteresis on the seismic performance of Cross-Laminated Timber (CLT) shear walls. While CLT walls are widely recognized for their excellent lateral resistance and stiffness, the nonlinear response of anchor bolts embedded in concrete foundations remains insufficiently understood. Through a parametric numerical study, the hysteretic behavior of anchor bolts is incorporated into wall models to evaluate its effects on stiffness, ductility, energy dissipation, and failure mode. The modeling approach utilizes OpenSees with a parallel material configuration, combining hold-down and anchor hysteresis represented by pinching04 materials, while calibration is based on experimental data of M12 anchors under cyclic loading. Results indicate that although anchor hysteresis has minimal influence on the initial stiffness, it significantly enhances ductility and energy dissipation, mitigating brittle failure and promoting a controlled, ductile response. These findings emphasize the critical role of anchor hysteresis in improving the seismic resilience of CLT wall systems and highlight the need for its inclusion in performance-based seismic design methodologies. Future experimental validation is planned to confirm these numerical insights and further develop capacity-based design strategies for ductile CLT-to-concrete connections.

POSTER

Speaker

R **Ramin Sarange**
Lead Presenter | I - 3

Enhanced adsorption and photocatalytic defluorination of perfluorobutane sulfonate using copper-modi

3:00 PM – 4:55 PM

DOCTORAL

Perfluorobutane sulfonate (PFBS) is one of the common short-chain per- and polyfluoroalkyl substances (PFAS). Compared to longer-chain PFAS, PFBS is generally more recalcitrant and mobile, and often of ppt or low ppb levels in the environment. As such, it has been a major challenge to degrade low concentrations of PFBS in large volumes of contaminated water. To address this urgent technical need, we developed a new adsorptive photocatalyst, referred to as Cu@BN, by photo-depositing copper (Cu) on boron nitride (BN), and tested the material for adsorption and subsequent solid-phase photocatalytic degradation of PFBS. Cu@BN enabled a trap-&-zap strategy that concentrates low concentrations of PFBS on a small volume of the adsorptive photocatalyst, and subsequently, degrades or mineralizes the pre-sorbed PFBS under UV. At a dosage of 2 g/L, Cu@BN was able to adsorb 95.8% of PFBS (100 µg/L) within 4 hours at pH 7.0. Subsequently, when the PFBS-bearing Cu@BN was subjected to UV irradiation (254 nm, 9 mW/cm2, pH 9, and 48 °C), 68.6% of pre-sorbed PFBS was defluorinated in 4 hours, which was contributed predominantly by photogenerated hole and secondly by hydroxyl radical. Cu doping was found to switch the BN surface from hydrophobic to hydrophilic, and enhance the charge carrier separation of BN, collectively leading to the enhanced adsorption and degradation of PFBS, and therefore the regeneration of material. The concentrate-&-destroy approach enabled by Cu@BN appears promising for more cost-effective removal and degradation of short-chain PFAS in contaminated waters.

POSTER

Speaker

T **Tiantian Chen**
Lead Presenter | I - 3

I - 4: Engineering and Computer Science (U) 3

3:00 PM – 5:00 PM | Location: Montezuma Hall

UNDERGRADUATE

POSTER

Speakers

A **Alexis Ruiz Cortes**
Lead Presenter | I - 4

D **Dorilyn Lopez Esparza**
San Diego State University

J **Jacob Manzanares**
Lead Presenter | I - 4

J **Jadyn Yamashita**
Lead Presenter | I - 4

J **Jena Leia Hernandez**
Lead Presenter | I - 4

K **Kyler Fung**
Lead Presenter | I - 4

S **Sky Soltero**
Lead Presenter | I - 4

Sofie Aranguren
San Diego State University

Quantifying Wake Structure Under Upstream Disturbances During Flow Interaction

3:00 PM – 4:55 PM

UNDERGRADUATE

Upstream disturbances in supersonic flow strongly modify the flow downstream in a seemingly sensitive way which depends on the geometry conditions. To explore and control these effects, we can use the hydraulic analogy to simulate our controlled aquatic conditions, where the Froude number is treated as the Mach number analog. In this study we simulate a flow interaction with varying objects and a range of controlled submerged upstream disturbances, including step and bump profiles. Additionally, the trials will be conducted using an in-house nozzle design; the nozzle walls have increased accuracy due to cutouts that improve visibility enhancing our Particle Image Velocimetry (PIV) capabilities. Using PIV, we are able to compute quantitative results such as velocity which allows us to derive crucial flow features such as wake structure and hydraulic jumps. An important aspect of the experiment is comparing results to the baseline trials which will be conducted without a submerged upstream disturbance. Therefore, we may analyze the differences and begin compiling different strategies to suppress adverse results. These values form a connection to existing aerospace applications where disturbances are affecting flow. For example, due to swept configurations continuing to be an area of interest of commercial, military, and aerospace applications, this provides relevant and quantitative insight into how upstream disturbances affect said behavior. Additionally, this would prove to assist in the development of topics relating to shock wave mitigation and ocean topology effects on waves.

POSTER

Speakers

Alexis Ruiz Cortes
Lead Presenter | I - 4

Kaleb Mayorga
Co-Presenter | I - 4

"Experimental Evaluation of the Effects of Anchor Rod Properties on Seismic Behavior"

3:00 PM – 4:55 PM

UNDERGRADUATE

This experimental study forms part of a broader research effort aimed at enhancing the seismic performance of cross-laminated timber (CLT) shear wall connections to concrete foundations, with a particular focus on hold-down anchor rods. The primary objective is to investigate the influence of anchor rod stretch length and material type—specifically vacuum-annealed versus plain steel—on the mechanical response of the connection. Key performance metrics evaluated include strength, stiffness, ductility, and energy dissipation under controlled loading conditions. Experimental results indicate that variations in anchor rod material and stretch length have a limited effect on peak strength and initial stiffness. However, significant differences are observed in ductility and energy dissipation capacity, highlighting the critical role of anchor rod behavior in governing the nonlinear response of CLT hold-down connections. These findings emphasize the importance of considering anchor rod material properties and deformation capacity in the seismic design and performance-based assessment of CLT structural systems.

POSTER

Speaker

Dorilyn Lopez Esparza
San Diego State University

Design and Prototyping of a Lunar-Compatible Nomex-Nylon Recycling System for Additive Manufacturing

3:00 PM – 4:55 PM

UNDERGRADUATE

Cost-effectiveness and sustainability are crucial components of lunar and planetary missions as organizations, such as NASA, continue space exploration. Efficient recycling of materials is necessary due to budget constraints and safety regulations. High-performance polymers, including Nomex, nylon, and polyethylene (PE), are commonly used in space travel. This study investigates the recycling of nylon from rehydratable pouches and Nomex fibers from Nomex cargo bags, using a machine consisting of three subsystems. A shredder intended for both the rehydrateable pouches and Nomex cargo bags is included in the subsystems, along with a multi-zone heating system for nylon recovery and a 3D filament extruder for mixing printable filament material. Engineering analyses were conducted, including heat transfer modeling, thermal resistance calculations, static and dynamic FBD's, and CFD simulations, to determine system sizing, safety, and capacity. These results displayed the viability of recovering and reprocessing polymer materials within thermal constraints. Furthermore, preliminary designs were developed using CAD modeling and implemented in a prototype. This work demonstrated the potential for polymer recycling and the importance of sustainability for future lunar missions. Future work aims to incorporate in-situ lunar regolith as an additive for filament production and compete in NASA's LunaRecycle Phase 3 Challenge.

POSTER

Speaker

Jacob Manzanares
Lead Presenter | I - 4

Pump Speed Modulation encourages Aortic Root Flow in the LVAD-assisted heart

3:00 PM – 4:55 PM

UNDERGRADUATE

Pulse Speed Modulation (PSM) is a control strategy intended to restore intermittent aortic valve opening (AVO) during continuous-flow left ventricular assist device (LVAD) support. This study evaluated the effect of PSM on aortic valve motion and hemodynamics using the Evaheart2 LVAD under reduced ventricular function. A physiologic mock circulatory loop was configured to simulate the CS70 waveform, representing a native heart with an ejection fraction of approximately 22% and a heart rate of 78 beats per minute. Fixed pump speeds spanning 1800–2400 rpm were tested using a PSM cycle consisting of three seconds at fixed speed followed by a one-second low-speed phase maintained at 1400 rpm. Pressure and flow were measured simultaneously using inline sensors, while synchronized video recorded aortic valve motion. Imaging data were analyzed to quantify cyclic aortic valve opening area, and flow waveforms were integrated to assess aortic valve flow and stroke volume. PSM produced consistent AVO during the low-speed phase across all fixed speed settings. Average AVO increased from 22.6 mm^2 at the lowest fixed speed to 30.1 mm^2 at the highest fixed speed, with corresponding peak openings ranging from 29.5 to 39.6 mm^2. Opening duration remained relatively constant (0.235–0.253 s), while the integral of valve opening increased from 4.37 to 5.90 $mm^2 \cdot s$. Hemodynamic measurements confirmed that total circulatory support was maintained within ±5% during PSM. At the lowest fixed speed, LVAD flow decreased from 4.45 to 3.04 L/min during the low-speed phase, while aortic valve flow increased from 0.06 to 0.52 L/min, with peak aortic valve flow rising from 2.26 to 3.67 L/min. Similar trends were observed at intermediate fixed speeds. These results demonstrate a clear correlation between video-derived aortic valve opening measurements and simultaneously acquired hemodynamic data, supporting the effectiveness of the Evaheart2 PSM algorithm in promoting pulsatile forward flow and aortic-root washout without compromising hemodynamic stability.

POSTER

Speaker

J

Jadyn Yamashita

Lead Presenter | I - 4

Modular Prosthetic Ankle–Foot Design for K2 Ambulation

3:00 PM – 4:55 PM

UNDERGRADUATE

Individuals with lower-limb amputations rely on prosthetic devices to restore mobility and independence. Prosthesis prescription is commonly guided by the Medicare Functional Classification Levels, which range from non-ambulatory (K0) to high-impact athletes (K4). K2-level users are limited community ambulators capable of navigating low-level environmental barriers such as curbs, stairs, and uneven terrain. However, many commercially available foot-ankle prostheses for this population provide limited adaptability to these obstacles. This project proposes a modular, axial foot-ankle prosthetic to improve adaptability and structural reliability for K2 users. A novel engineering design was developed in a virtual environment with a range of materials evaluated. Finite element analysis (FEA) simulations were performed for a maximum body weight of 200 lb (91 kg). Initial plans for the project involved 3D printing the components using PLA; however, FEA results indicated that the maximum von Mises stresses exceeded the material's yield strength by 36.5%, particularly at the ankle joint. These results showed that these regions in the structure would undergo plastic deformation under the applied load. This prompted iterative design modifications in both geometry and material selection, where various materials used in prosthetics were explored. Revised designs were re-simulated and demonstrated reduced peak stresses, while still maintaining range of motion. Von Mises stresses in the improved design using 5086-H32 aluminum remained 27.8% below the yield strength, exceeding the minimum safety factor target of 2.0 for prosthetic components. Overall, this project represents an early-stage exploration of a modular ankle-foot prosthetic system for K2 ambulation, using computational analysis to compare design versions and materials. The results aim to reduce development risk and guide future fabrication and mechanical bench testing.

POSTER

Speakers

J

Jena Leia Hernandez

Lead Presenter | I - 4

M

Miguel Nunez

San Diego State University

Do Stochastic Models Improve Dengue Vector Dynamics?

3:00 PM – 4:55 PM

UNDERGRADUATE

Understanding mosquito population dynamics is essential for modeling dengue fever transmission. We developed a temperature-driven mosquito–human model and compared deterministic ordinary differential equation (ODE) simulations with stochastic differential equation (SDE) formulations at the district level. Daily temperature data were used to construct a seasonal mean temperature and an Ornstein–Uhlenbeck process to represent stochastic temperature variability. Temperature acts as a dominant forcing mechanism, strongly shaping seasonal mosquito abundance. While SDE simulations capture variability and provide uncertainty bounds, deterministic ODE models already reproduce the primary seasonal patterns observed in mosquito populations and dengue incidence. These results suggest that, at the scales considered, stochasticity affects variability but is not essential for capturing mean seasonal dynamics.

POSTER

Speaker

K

Kyler Fung

Lead Presenter | I - 4

A Study of Flash Sintering Phenomena in 8mol% Yttria-Stabilized Zirconia at 850 °C

3:00 PM – 4:55 PM

UNDERGRADUATE

Flash sintering is an emerging field-assisted ceramic processing technique capable of achieving rapid densification at reduced furnace temperatures and processing times. While early interpretations emphasized Joule heating as the dominant mechanism, increasing evidence suggests that applied electric fields influence diffusion behavior and microstructural evolution beyond thermal effects alone. Building on prior flash sintering studies of 8mol% yttria-stabilized zirconia (8YSZ), this work examines grain growth phenomena at a furnace temperature of 850 °C.

Microstructural characterization reveals accelerated grain growth, anisotropy, and non-uniform grain size distributions correlated with electric field direction and electrode polarity. These features deviate from conventional thermally driven sintering behavior and indicate enhanced grain boundary diffusion associated with electric field–related electrochemical and electrothermal processes. Grain growth kinetics were analyzed to refine existing models and better capture the observed microstructural evolution during flash sintering.

In parallel, ongoing in situ flash sintering experiments conducted in a scanning electron microscope (SEM) are being used to explore environmental contributions to flash behavior. Preliminary observations suggest that oxygen availability may influence flash initiation and localized microstructural evolution. However, these experiments are currently limited by achievable sample temperature in the SEM configuration, where radiative losses and heat-stage constraints can prevent consistently reaching 850 °C. Current efforts focus on improved thermal shielding and heating-stage development to better control sample temperature and determine whether oxygen-related effects are present. Together, these results highlight the complex interplay between electric fields, microstructural evolution, and environmental conditions in flash sintered 8YSZ.

POSTER

Speaker

S **Sky Soltero**
Lead Presenter | I - 4

Effects of Aeration on Nitrogen and Carbon Removal in an Electrified Anaerobic Baffled Reactor

3:00 PM – 4:55 PM

UNDERGRADUATE

This study examines nutrient and carbonaceous compound removal along a two-stage anaerobic baffled reactor (ABR) with a bioelectrochemical system (BES). This research investigates how the removal of ammonium and carbonaceous compounds varies along the chambers of the reactor and how these dynamics differ between BES-only and BES with aeration. A laboratory scale two-stage ABR was operated under controlled conditions, with samples collected from each chamber, including influent and effluent, for analysis of chemical oxygen demand (COD) and ammonium concentrations, and fluorescence tracking of organic constituents and methanogenesis. Ammonium concentrations were used as an indicator of nitrogen processes, while COD was used to evaluate carbon removal. Preliminary results show average removals of 67.5% of the ammonium and 92.6% of the COD for the BES with aeration and 68.5% of the ammonium and 71.6% of the COD for the BES without aeration. The use of aeration in the BES appeared to increase COD removal efficiency while ammonium removal and nitrification stayed consistent. These findings show how the introduction of limited aeration to a BES can benefit the overall performance of ABR systems, which would enhance energy efficient wastewater treatment.

POSTER

Speaker

S **Sofie Aranguren**
San Diego State University

I - 5: Engineering and Computer Science (G) 2

3:00 PM – 5:00 PM | Location: Montezuma Hall

GRADUATE

POSTER

Speakers

A **Akhil Jain**

A **Amber Rule**
Lead Presenter | I - 5

A **Arshia Akhavan**
Lead Presenter | I - 5

F **Fabian Gutierrez Juarez**
Lead Presenter | I - 5

J **Joshua Warden**
Lead Presenter | I - 5

K **Kathryn Cosper**
Lead Presenter | I - 5

Petros Kapetanios
Lead Presenter | I - 5

Sahithi Lingala
Lead Presenter | I - 5

Compact Dual-Band Circularly Polarized Antenna for GPS/GNSS Applications

3:00 PM – 4:55 PM

MASTER'S

A dual-band circularly polarized antenna for GPS/GNSS applications is being developed. This ongoing research involves researching, modeling, simulating, fabricating, testing, and measuring the antenna in a lab. The proposed structure consists of 4 sequentially rotated elements, so that progressive phase shifts across them can produce wideband circular polarization. The antenna contains two independently controllable elements to tune the resonance frequencies at the L1 and L5 bands.

POSTER

Speaker

Akhil Jain

Rethinking coastal urban waterway bioassessment: Do standard indices misclassify brackish streams?

3:00 PM – 4:55 PM

MASTER'S

Coastal urban waterways are vital sites for biogeochemical cycling and often act as conduits of urban runoff and pollution into broader water systems, thus regular monitoring is essential. Common environmental assessments in California utilize benthic macroinvertebrate (BMI) populations for primarily freshwater conditions, such as the California Stream Condition Index (CSCI), while the California Rapid Assessment Method (CRAM) uses wetland attributes. However, there is a need to evaluate and improve environmental assessment indices for monitoring urban brackish systems, which may be subject to chronic and acute disturbances. This work provides guidance for implementing these ecological assessments in brackish, urban waterways. We utilized California state-wide data (2002 to 2019) and regional data from San Diego County (2005 to 2012), to evaluate if a correlation exists between coastal streamwater quality and CSCI. Statewide coastal stream analysis indicated a modest, statistically significant relation between brackish water quality parameters (conductivity and chloride) and CSCI. Both statewide and regionally, as conductivity and chloride increase, CSCI scores decrease, suggesting that changes in parameters associated with brackish waters influence stream health and BMI populations. These preliminary results suggest a need to reconsider the type of BMI populations deemed appropriate for brackish water environments when interpreting CSCI scoring. A case study of Alvarado Creek, a tributary of the San Diego River in southern California, supports this need to reexamine the use of freshwater assessments in such conditions. The CRAM indicated improved conditions post restoration, while CSCI scores indicated degraded stream conditions. This discrepancy is likely due to bias introduced by freshwater BMI taxa utilized by CSCI assessments. We advocate that properly characterizing the environmental conditions and implementing a suite of appropriate assessment metrics may improve the interpretation and application of scores.

POSTER

Speaker

Amber Rule
Lead Presenter | I - 5

Yggdrasil: Toward a General-Purpose Scene Graph Substrate for Autonomous Systems

3:00 PM – 4:55 PM

MASTER'S

Scene graphs have become a central representation for robotics and autonomous systems, providing structured, multi-level descriptions of the environment that enable perception, planning, and long-horizon autonomy. Despite their importance, existing scene-graph implementations,DSG, and 3DSSG to name a few, remain fragmented and task-specific. Their designs often fail to generalize across new environments or goal sets, forcing developers to re-implement core functionality. Moreover, their tight coupling with downstream software prevents them from being isolated, scaled, or deployed as independent services, which becomes a critical limitation in distributed or resource-constrained settings.

To address these challenges, we introduce Yggdrasil, a generic, modular Scene Graph service designed for both distributed edge deployment and standalone library use. By unifying and decoupling the scene-graph layer from downstream tasks, Yggdrasil enables system-level isolation that makes it possible to introduce targeted optimizations for the mathematical queries executed over the graph—optimizations that are difficult to apply within tightly integrated monolithic systems. We demonstrate Yggdrasil's plug-and-play capability by integrating it into two established downstream systems, path planning and SLAM, replacing their native scene-graph modules without architectural changes. These results highlight Yggdrasil's potential as a scalable and efficient foundation for future autonomous systems operating in dynamic and distributed environments.

POSTER

Speaker

Arshia Akhavan
Lead Presenter | I - 5

Experimental Measurements and Computational Modeling of Carbon-Nanoparticle Precursor Molecules

3:00 PM – 4:55 PM

MASTER'S

Flame science has been aiding society for generations with applications from energy, transportation, and agriculture. The burning of hydrocarbons in combustion results in byproducts of chemical species where fuel-rich conditions lead to the development of Polycyclic Aromatic Hydrocarbons (PAHs). This can result in gas-particle phase transitions with soot forming at high enough excess fuel. PAHs are classified as substances composed of connected aromatic rings, are a result of incomplete combustion and are undesirable due to their toxicity. The study of laminar pre-mixed burner-stabilized stagnation (BSS) flame allows the byproducts of combustion to be captured as a flame sample and analyzed through a gas chromatography machine (GC). Of importance are H2, CO, CO2, CH4, and C2H2, gases all of which are main products of combustion. An emphasis on C6H6 for occurring in fuel rich conditions as a PAH and precursor to soot formation. This study utilizes a non-sooting flame deliberately chosen to be at the limit of where particles appear and a sooting flame with particles appearing. Dry ice is used for condensing the flame products to ice which allows for the chemical reactions to be captured as a sample and analyzed through a GC machine. The flame sample is evaluated to determine if it is comparable to predictions of established chemical kinetic models by quantifying uncertainties. Validation of experimental data can lead to development of accurate flame models for different applications such as high temperature flames where chemical vapor deposition of graphene can occur giving rise to newer manufacturing processes.

POSTER

Speaker

F

Fabian Gutierrez Juarez

Lead Presenter | I - 5

High-throughput MEMS microfluidics for cellular modification and organization

3:00 PM – 4:55 PM

MASTER'S

Electroporation holds significant promise as a versatile tool for molecular delivery and therapeutic intervention, yet its widespread adoption remains constrained by fundamental limitations in control, efficiency, and biological specificity. This thesis presents the design and evaluation of a microelectromechanical system based platform that integrates electroporation and dielectrophoresis to enable simultaneous cellular manipulation, molecular delivery, and post-treatment organization. The device leverages platinum electrodes fabricated using photolithography to achieve spatially controlled electric fields, allowing efficient electroporation while maintaining cell-scale precision and high-throughput. To enable biosafety level-1 (BSL-1) validation, lipid vesicles encapsulating red fluorescent protein (RFP) were employed as mammalian cell analogs, providing a tunable and reproducible model for membrane permeabilization and molecular transport. Successful electroporation was quantified via RFP uptake, serving as an optical proxy for membrane disruption and delivery efficiency. Following electroporation, dielectrophoretic forces were applied to selectively organize vesicles based on alterations in membrane charge and electrical properties induced by pore formation. This differential response enabled the spatial separation of successfully and unsuccessfully electroporated populations within the same device. The results demonstrate that coupling electroporation with dielectrophoretic sorting in a MEMS framework provides a scalable strategy for high-throughput cell processing and organization without reliance on labeling or biochemical markers. This integrated approach offers a foundation for future translation to live mammalian cells, stem cell engineering, and nonviral therapeutic delivery platforms, while highlighting key design considerations and limitations associated with electric-field–based cellular manipulation.

POSTER

Speaker

J

Joshua Warden

Lead Presenter | I - 5

Exploration for Simultaneous Detection of Electroactive and Nonelectroactive Neurotransmitters

3:00 PM – 4:55 PM

MASTER'S

This work presents the design and proposed fabrication of several electrodes for a multichannel carbon probe for the simultaneous recording of dopamine (DA) and glutamate (GA) in vitro and in vivo through fast-scan cyclic voltammetry (FSCV). DA and GA are key neurotransmitters that co-regulate excitatory and reward neural pathways. Disruption of these linked neurotransmitters have been implicated in several psychiatric disorders, including epilepsy and schizophrenia, making simultaneous detection essential to understanding neurological disease. This work builds on prior research demonstrating DA and serotonin detection using microelectrode arrays and enzyme-functionalized probes for indirect GA recording. The designs will integrate both electroactive and enzyme-mediated nonelectroactive detection pads into one. The proposed 4-channel array will feature three electrodes conditioned with triangular FSCV waveforms optimized for DA oxidation and one GluOx-functionalized electrode for indirect GA detection. Electrode geometry and orientation will be optimized, and all will be microfabricated at the SDSU NanoFab. Each electrode conditioning and characterization will follow the protocols as set by Galindo et al. (2024) and Castagnola et al. (2021). The resulting dual-function array will provide a system for real-time neurotransmitter analysis in vitro and, ultimately, in vivo models, contributing to the development of FSCV neural probes for studying psychiatric disease mechanisms.

POSTER

Speaker

K

Kathryn Cosper

Lead Presenter | I - 5

Dual Polarized Wideband Phased Array Antenna with Beam Steering Capability for X-band

3:00 PM – 4:55 PM

MASTER'S

The X-band frequency range (8.2–12.4 GHz) is used in various applications where reliable operation demands antennas with wide bandwidth, high gain, and stable polarization performance. Circular polarization (CP) minimizes polarization mismatch and preserves signal integrity in the presence of reflections, multipath, and environmental interference. The objective is to design and develop a dual circularly polarized wideband array antenna with beam-steering capability. The proposed design features two orthogonal bowtie elements positioned atop a cavity structure, supported by a low-permittivity styrofoam, with a metasurface integrated at the cavity's bottom ground plane. The bowtie configuration inherently provides wideband operation, while the orthogonal orientation of the elements facilitates CP generation. The cavity enhances directivity by confining and guiding electromagnetic energy, and the metasurface layer enables additional control over phase distribution and impedance matching, improving the axial ratio and extending the operational bandwidth. The research will begin with single-element analysis to optimize impedance matching, radiation pattern, and polarization purity, followed by scaling to a 8×8 array configuration. This progression aims to realize a compact, high-performance antenna system suitable for radar and satellite communication platforms that demand efficient polarization diversity, wide bandwidth, and adaptive beam-steering capabilities.

POSTER

Speaker

P **Petros Kapetanios**
Lead Presenter | I - 5

Design and Fabrication of Tick-Inspired Microneedles for Enhanced Skin Penetration and Controlled Dr

3:00 PM – 4:55 PM

MASTER'S

Nature provides valuable design insights for advanced biomedical devices, particularly in developing minimally invasive drug delivery systems. This work presents the design and fabrication of tick-inspired micro-needles engineered to enhance skin penetration and enable controlled drug release. Ticks were selected as the biological model due to their backward-facing barbs, which impart strong adhesion and high pull-out resistance—key features for efficient transdermal delivery. Bio-inspired micro-needles were modeled using CAD software, beginning with a standard baseline geometry of conical needles and incorporating symmetrical barbs according to testing conditions. Due to the intricate microstructures, high-resolution 3D printing was employed for precise fabrication. To optimize performance, four structural parameters were systematically varied: barb angle, number of barbs, number of barb rows, and barb orientation. Mechanical testing quantified adhesion and pull-out forces to determine optimal configurations. Preliminary results show an increase in mechanical strength with the addition of backward-facing barbs; adding 6 barbs in a row shows a 70% increase in force whereas adding 6 rows of 6 barbs shows almost 150% increase in pullout force when compared to a barbless microneedle array . Parallel in-vivo fluorescence testing with PEGDA-printed micro-needles will assess drug diffusion and correlate structural parameters with delivery efficiency. The results will be compared with in-vivo fluorescence test data to correlate higher mechanical pull out force with higher rates of drug elution. Overall, this study highlights the potential of additive manufacturing in developing bio-inspired micro-needle systems capable of achieving targeted, minimally invasive, and sustained drug delivery.

POSTER

Speaker

S **Sahithi Lingala**
Lead Presenter | I - 5

I - 6: Engineering and Computer Science (G) 3

3:00 PM – 5:00 PM | Location: Montezuma Hall

GRADUATE

POSTER

Speakers

A **Arthur Gratas**
Lead Presenter | I - 6

H **Hunter Atchley**
Lead Presenter | I - 6

James Burns
Graduate Researcher | San Diego State University

J **Janani Priyadharshini Srinivasan**
Lead Presenter | I - 6

K **Kiara Gambuzza**
Lead Presenter | I - 6

N **Nfn Bhavana**
Lead Presenter | I - 6

P **Palash Suryawanshi**
Lead Presenter | I - 6

Co-located Individually Excited Dual-band Miniaturized Loop Antennas for Wearable RF Applications

3:00 PM – 4:55 PM

MASTER'S

Electrically small, co-located dual band loop antennas with balun feed structures for wearable RF applications have been designed, fabricated and measured using a simple series LC-loading technique to achieve inherent impedance matching for both frequency bands at a 75% miniaturization level in terms of perimeter length and 94% in terms of overall footprint area (when compared to their one-wavelength counterparts) at their respective operating frequencies, i.e., 915 MHz and 2.4 GHz. The antennas were co-located on the same plane and omnidirectional radiation patterns with minimal interference between the two loops were achieved for both bands, with a -10dB bandwidth of 1.9% and 2.1% for the inner and outer loops, respectively. The feed structure for the outer loop is on the same plane as the two loops, while the feed structure for the inner loop is on the opposite plane and connected to the inner loop through vias in the substrate. A brief overview of the theory and miniaturization technique used, followed by a detailed explanation of the design process and simulation of both loops with their respective feed structures is shown. Simulation results are presented for both loops taking into consideration the ohmic losses of the lumped inductors and the S-parameter data of the transformer. Radiation pattern and S-parameter measurements are performed on the fabricated antenna prototype, comparing the results with those of the simulation.

POSTER

Speaker

A

Arthur Gratas

Lead Presenter | I - 6

Driving Shape-Based Self-Assembly in a Macro Scale Environment

3:00 PM – 4:55 PM

MASTER'S

There is no better engineer than nature. In order to create assemblies of different proteins, macromolecules, or likewise structures, nature is adept at controlling energy states from start to finish in order to build what is necessary for survival. As self-assembly happens from the first molecule being brought to the other, energy is essential for attraction and bonding. Distinct self-assembled states have distinct energies associated with them that dictate the likelihood of that system to enter, exit or stay in that specific state at specific time scales. Nature can shift these probabilities or residence times of each state by consuming ambient chemical, physical or thermal energy, therefore directing specific stable outcomes. We propose a macro-scale self-assembly system that can self-assembly into distinct structures depending on how the individual shapes pack against each other. The outcomes of the proposed assembly process are primarily entropy driven – based on the total number of conformations and the number of components involved in each conformation – with minimal differences in other forms of energy. This large-scale assembly allows us to model the process by which entropy of the system changes in response to energy input. Using this setup, we can quantify the minimum amount of work to be put into our system in order to make low probability states occur more often. Through this we aim to gain a grasp of the mathematical relation between different work input into the system and the change in configurational entropy of the system.

POSTER

Speakers

H

Hunter Atchley

Lead Presenter | I - 6

A

Ali Vandra

Co-Presenter | I - 6

Computational Modeling of Grain Boundary Serrations in Polycrystalline Materials

3:00 PM – 4:55 PM

MASTER'S

This work presents a computational study on the role of grain boundary (GB) serrations in influencing stress redistribution within polycrystalline materials. A two-dimensional polycrystalline microstructure is generated using a MATLAB-based Voronoi modeling framework, where grains are represented as individual domains embedded within a continuous intergranular network. Controlled geometric serrations are introduced along a selected fraction of grain boundaries, allowing systematic variation of serration amplitude, frequency, and spatial distribution.

The generated microstructures are imported into COMSOL Multiphysics and analyzed under prescribed mechanical loading conditions using finite element analysis. The grain boundary region is modeled as an effective intergranular phase with a controlled characteristic thickness to ensure numerical robustness and consistent meshing. Stress and strain fields are evaluated to assess how geometric modifications to grain boundaries influence local stress concentrations and load transfer paths across the microstructure.

Preliminary results indicate that certain serration configurations promote more distributed stress fields, while others lead to localized stress amplification near boundary features and junctions. By varying grain size, serration coverage, and boundary geometry, this study explores how microstructural design parameters affect mechanical response at the mesoscale. The results provide insight into the potential role of grain boundary morphology in tailoring mechanical behavior and offer a computational framework for future investigations incorporating material heterogeneity and inelastic deformation mechanisms.

POSTER

Speaker

James Burns

Graduate Researcher | San Diego State University

Design and Fabrication of Pre-Processing unit for a Vanilla transformer

3:00 PM – 4:55 PM

MASTER'S

Pre-processing ASICs become powerful when used for inferencing a large language model (LLM) as it separates computationally intensive pre-processing tasks from the actual model computation. The most popular platforms for carrying out ML/DL inference are GPUs, FPGAs, and CPUs; CPUs have speed limitations, GPUs have energy efficiency difficulties, and FPGAs have scaling issues. The main success of machine learning models not only relies on accuracy, but also on fast, efficient and energy-minded inferencing. ASICs can effectively pre-process data by having dedicated pathways for data without depending on the accelerator path and thus they are the best option for developing a modular pre-processing unit. This ASIC makes the accelerator perform much faster as it utilizes only tensor ready input, and the latency of the accelerators can be reduced substantially. The work focuses on designing and fabricating an ASIC that will pre-process data required for inferencing a Vanilla Transformer Model. The TSMC 180nm process technology is targeted for fabrication, and digital design is performed using the Cadence tools \textit{Genus} for high level and RTL synthesis; \textit{Innovus} for layout creation, routing and physical synthesis; \textit{Tempus} for static timing analysis; and \textit{Voltus} for power integrity analysis. The design will be submitted to and be \textit{taped out} by MOSIS 2.0 fabrication services. A custom PCB is designed and fabricated with the ASIC, and hardware inferencing performance will be evaluated.

POSTER

Speaker

J

Janani Priyadharshini Srinivasan

Lead Presenter | I - 6

Effects of Direct and Indirect Photolysis on Fluorescent Compounds in Tire Wear Particle Leachates

3:00 PM – 4:55 PM

MASTER'S

Tire tread particles are microplastics that leach toxic chemicals during sunlight exposure and other environmental conditions. We tracked the decay kinetics of leachates from tire tread particles in Suwannee River Natural Organic Matter (SRNOM) and ultrapure (UP) water under 8 hours of simulated sunlight to evaluate the effects of direct and indirect photolysis on fluorescent components over time. We found that the fluorescence intensity of N-(1,3-dimethylbutyl)-N′-phenyl-p-phenylenediamine (6PPD), a known toxic chemical derived from tire tread particles, was reduced by ~78% in ultrapure water leachates, following a first order decay rate of 0.188 h-1. Our results indicate that the photodegradation kinetics will be improved with a double exponential decay model, which is the next phase of this research. Dark controls of the tire tread particles leached in UP water showed a linear decrease of ~20%, which may reflect volatilization or abiotic transformation of 6PPD under dark conditions. For tire tread particles leached in SRNOM, the innate fluorescence of SRNOM had an overprinting effect on the 6PPD, and 47.5% of the fluorescence in the 6PPD region remained. To better evaluate the phototransformation of 6PPD in complex mixtures like SRNOM, parallel factor analysis modeling of three-dimensional excitation-emission-matrices will be implemented to look at the change in fluorescent components related to 6PPD and other fluorescent organic compounds found in tire tread particle leachates. In addition, there may be other TWP-derived compounds and transformation products in addition to 6PPD that have the potential to contribute to aquatic toxicity. As a result, there is a need to identify the toxic compounds and the processes that lead to their removal and transformation in these environments. This research helps to solve this issue and advances the applications of fluorescence spectroscopy as a method for evaluating the environmental fate of compounds from tire-derived microplastics.

POSTER

Speaker

K

Kiara Gambuzza

Lead Presenter | I - 6

Experimental and Computational Investigations of Truncated Aerospike Nozzle Flowfields'

3:00 PM – 4:55 PM

MASTER'S

The wake dynamics and plume behavior of a linear truncated linear aerospike nozzle are

investigated through combined computational and experimental analysis. The objective of this research is to improve the understanding of shock interactions and flow separation along the aerospike surface under supersonic conditions. Emphasis is placed on evaluating the effects of aerospike truncation height relative to the throat height, on wake attachment and stock structure, as truncation geometry is a key design consideration for practical aerospike implementations.

Computational fluid dynamics (CFD) simulations were conducted using multiple truncated aerospike geometries with varying truncation height to throat height ratios, assessing how changes in truncation height influence plume and shock structure. These steady state RANS demonstrate plume expansion and shock interactions within the flow field, providing quantitative insight into aerospike altitude-compensation behavior and the impact of changing Nozzle Pressure Ratios (NPR) on wake attachment and shock interactions. In addition, acoustic measurements were conducted to examine potential screech phenomena and quantify sound levels associated with supersonic throat dynamics. Measurements were used to identify dominant screech tones and overall sound pressure levels, allowing correlations between acoustic behavior and shock structure observed in CFD. To support and interpret the computational and acoustic results, a controlled laboratory configuration was developed to produce steady supersonic flow. Schlieren imaging was used to visualize the shock waves, expansion fans, and wake attachment behavior exiting the nozzle, providing direct comparison with CFD predictions and aiding interpretation of wake structure and stock interactions.

In the future, this understanding can be used to improve the design of aerospike nozzles

for propulsion systems that operate efficiently across a wide range of altitudes.

POSTER

Speakers

Nfn Bhavana
Lead Presenter | I - 6

Majied Alfar Diaz
Co-Presenter | I - 6

Automated Detection of Homeless Encampments and Homelessness-related Entities using Deep Learning

3:00 PM – 4:55 PM

MASTER'S

Homelessness represents a significant societal challenge in urban areas across the United States, affecting over 653,000 people as of January 2023. Effective monitoring of homeless encampments is crucial for public health initiatives, resource allocation, and timely assistance to those in need. Traditional monitoring approaches such as point-in-time counts and manual surveys are labor-intensive and difficult to scale. This research presents an automated system that leverages deep learning algorithms to identify homeless-related entities in Google Street View images. Our focus

encompasses four key categories: homeless encampments, unsheltered individuals, homeless carts, and homeless bikes. Through evaluation of four different models (YOLO V8, Fast R-CNN, Mask R-CNN, and DeepLabV3+), we address significant challenges including class imbalance through techniques such as class-aware sampling, loss reweighting, and advanced data augmentation. Our most effective model achieved a 77% F1 score for encampment detection with a mean Average Precision of 79.3%. This paper details our methodological approach, results, and examines both technical considerations and ethical implications for real-world application of this technology.

POSTER

Speakers

Palash Suryawanshi
Lead Presenter | I - 6

Pranjal Patel
Co-Presenter | I - 6

I - 7: SDSU VISTA Poster Presentation Bravo

3:00 PM – 5:00 PM | Location: Montezuma Hall

UNDERGRADUATE

POSTER VISTA

Speakers

Joel Argueta
Lead Presenter | I - 7

Jesus Gastelum
Lead Presenter | I - 7

Cruz Gutierrez
Lead Presenter | I - 7

Blaze Lopez
Lead Presenter | I - 7

Gabriel Madrigal
Lead Presenter | I - 7

John Malagón
Lead Presenter | I - 7

Mike Ruiz
Lead Presenter | I - 7

Juan Vigil
Lead Presenter | I - 7

Post-Incarceration Reentry Shock:: A Theoretical Application of the W-Curve Theory of Cultural Adaptation

3:00 PM – 5:00 PM

UNDERGRADUATE

Post-incarceration reentry represents a profound cultural transition that mirrors, and intensifies, the challenges documented in traditional models of cultural adjustment. This project explores the application of the W-Curve Theory – typically used to describe the phases of adaptation experienced by individuals entering and then returning from a foreign cultural environment – to formerly incarcerated individuals navigating their return to society. While reentry is often assumed to be a simple return home, research and lived experience show that individuals face unanticipated psychological, emotional and social disruptions. Through theoretical integration, it is concluded that the W-Curve Theory offers a powerful theoretical tool for mapping the emotional and psychological process of reentry. Conceptualizing reentry as predictable adaptation phases can improve support services and develop better reentry programs. Current literature acknowledges struggles with reentry, but few frameworks explain why returning home triggers disorientation, especially when freedom is expected to bring relief. This framework offers a model that reentry programs can implement for returning citizens.

POSTER VISTA

Speaker

Joel Argueta
Lead Presenter | I - 7

Grammar Mechanics

3:00 PM – 5:00 PM

UNDERGRADUATE

The objective of this poster presentation is to show how the education system has shifted away from proper grammar mechanics to focus on language arts content. It may be considered an injustice to the current student population by not instructing these future members of America's workforce in the proper mechanics of grammar. The findings suggest that it be necessary for the education system revert to previous academic structure, so students may acquire the necessary verbal and written communication skills that employers are seeking. Businesses may lose money or credibility if grammar is used inadequately. The argument and purpose are to highlight the importance of proper grammar in the academic environment for clear, concise, and direct communication. This poster reviews literature. As a result of this, I am suggesting a painless grammar course for future college students. In order to enhance student writing proficiency while strengthening our work force.

POSTER VISTA

Speaker

Jesus Gastelum
Lead Presenter | I - 7

How Algorithms Reinforce Confirmation Bias

3:00 PM – 5:00 PM

UNDERGRADUATE

Confirmation bias is the tendency to favor information that supports our existing beliefs while dismissing contradictory evidence, shaping how we interpret the world and make decisions. In everyday life, these biases influence our news consumption, interpersonal judgements, and even routine choices, often without our awareness. Modern technology amplifies these effects through algorithm-driven platforms which create personalized content streams that reinforce prior views, creating echo chambers that limit exposure to diverse perspectives. As a result, individuals become increasingly polarized and less receptive to new or opposing information. To minimize these biases, deliberate strategies are essential. Practicing critical thinking encourages individuals to question assumptions, evaluate evidence rigorously and distinguish fact from opinion. Intentionally seeking opposing viewpoints helps disrupt cognitive blind spots and broaden understanding to diverse perspectives. By developing awareness and adopting these practices, we can foster more informed decision-making and support healthier public discourse stifling a polarizing society.

POSTER VISTA

Speaker

Cruz Gutierrez
Lead Presenter | I - 7

AI in Newsrooms

3:00 PM – 5:00 PM

UNDERGRADUATE

Artificial Intelligence is increasingly being implemented into news production tasks in news outlets worldwide. This research analyzes how AI and automated technology are used in the journalistic profession. This is salient information for journalists, as they will need to collaborate productively with AI in the newsroom to maintain and improve journalistic quality. According to The Journalism AI Report, four out of 10 newsrooms already use AI in news production. In 2021, a survey of 246 media leaders from 52 countries by the University of Oxford showed that over 80% used AI for personalized experiences and production efficiency. For this project, I have selected nine news outlets to investigate how much AI and automation they are using in the production of news. Besides analyzing these news outlets, I explore the impact and economic variability that come with using this new technology. I also examine interviews with editors and other newsroom staff to better understand the impact of AI in production. The findings suggest AI will not replace journalist but aid them in producing data-driven stories faster. We should use this information to train future journalists in AI and automation of news production.

POSTER VISTA

Speaker

Blaze Lopez

Lead Presenter | I - 7

Protective Factors in Prison: Prosocial Programs as Prosocial Learning Environment

3:00 PM – 5:00 PM

UNDERGRADUATE

According to Bandura's Social Learning Theory (SLT), prison is a social learning environment where people learn from each other. This theory is most commonly applied to antisocial learning. Specifically, negative peer relationships present in a traditional prison environment can lead to the transmission of antisocial (criminal) behaviors among the peer group and beyond it. However, little is known about potential prosocial peer learning that occurs in prison in light of the increasing presence of rehabilitative, educational and vocational programs, and peer groups that result from these prosocial programs. The objective of this poster is to introduce the concept of positive social learning in a correctional setting, reframing the pillars of SLT to include a strength-based approach. To achieve this objective, I conducted 10 interviews with incarcerated people on their experiences with prosocial learning in prison. The findings suggest prosocial programs serve as protective factors by promoting self-efficacy, by stimulating moral agency, and by propagating prosocial peer groups functioning as models. The implications of this poster are to bring to consciousness the importance of prosocial peer learning occurring in prison due to prosocial programs' micro-environments and how we should do more to motivate and expand prosocial programs.

POSTER VISTA

Speaker

Gabriel Madrigal

Lead Presenter | I - 7

Pollinators at Risk: Honey Bees, Pesticide Use, and the Future of Agricultural Sustainability

3:00 PM – 5:00 PM

UNDERGRADUATE

Honey bees are considered the world's most important and efficient pollinators. They contribute to the world's agricultural needs by pollinating up to 90% of all global agriculture. It is estimated that honey bees and other pollinators are responsible for pollinating about $600 billion worth of agriculture yearly. The honey bee's existence is a key factor to all American farm growers; however, we are in danger of losing this delicate ecosystem that we have come to take for granted. Experts have posited that the over use of pesticides and the onset of Colony Collapse Disorder have caused a high level of concern amongst the agriculture community in the United States. For example, in China the over use of pesticides has killed off the honey bee population so that pear farmers in the South Sichuan Province now have to pollinate their orchards by hand. The possibility of this taking place in the U.S. would have a drastic effect on the agriculture industry and calls for immediate action.

POSTER VISTA

Speaker

John Malagón

Lead Presenter | I - 7

Addressing Mental Health Issues Through Art Therapy

3:00 PM – 5:00 PM

UNDERGRADUATE

Mental health issues including depression, anxiety, and stress affect individuals of all age groups and cultures. According to the World Health Organization, depression is the leading cause of disability worldwide, while anxiety disorders affect millions, contributing to a substantial global disease burden. Common treatments for these disorders include psychotherapy, a form of talk therapy, and pharmacotherapy, the use of prescription medication to treat mental health issues. While these may be effective treatments for some, they are not suitable or sufficient for all individuals. Art therapy, the use of creative art processes for therapeutic purposes, offers an alternative and contemporary method for alleviating mental health symptoms. Art mediums may include music, creative writing, ceramics, drawing, or other activities that are considered creative and provide therapeutic healing. Art therapy has emerged as a promising approach to addressing depression, anxiety, and stress, along with being recognized for improving self-esteem and behavior. The findings of the research will help bring awareness to the use of art therapy and its effectiveness in reducing depression, anxiety, and stress.

POSTER VISTA

Speaker

Mike Ruiz
Lead Presenter | I - 7

Courtroom Workgroups and the Hidden Forces Behind Plea Bargains

3:00 PM – 5:00 PM

UNDERGRADUATE

Plea bargains resolve more than 90 percent of felony cases in the U.S., but the internal dynamics guiding those negotiations remain largely invisible. As a result, the lack of public insight into the negotiations may exacerbate disparities that are already present and well documented across the criminal justice system. Since plea bargains are in place not only to alleviate the court's caseload but also aid fair treatment of individuals facing lengthy prison sentences, having an insight into the process is of utmost importance. This project examines how courtroom workgroups (judges, prosecutors, public defenders and clerks) use familiarity, informal norms and workflow expectations to shape significant outcomes for system-impacted individuals. Drawing on research investigating the inner workings of courtroom workgroups with a focus on public defender constraints and the influential role of court clerks, it is highlighted how informal relationships and workflow control plea decisions. Raising awareness about the extrajudicial factors influencing plea negotiations can inform criminal justice reforms that are based on fairness, transparency and accountability of public officials.

POSTER VISTA

Speaker

Juan Vigil
Lead Presenter | I - 7

I - 8: Health Nutrition and Clinical Sciences (G) 1

3:00 PM – 5:00 PM | Location: Montezuma Hall

GRADUATE

POSTER

Speakers

David Tran
Lead Presenter | I - 8

Jenny Liang
Lead Presenter | I - 8

Maggie Drelichman
Lead Presenter | I - 8

Nino Gvalia
Dr. Fred H Gage Lab of Genetics | Salk Institute for Biological Studies

Rita Herfi
Lead Presenter | I - 8

Shealyn Daley
Lead Presenter | I - 8

Sierra Guenther
Lead Presenter | I - 8

Lindsey Sanchez
Lead Presenter | H - 1

Susceptibility to eccentric contractions muscle injury in cigarette smoke-exposed mice

3:00 PM – 4:55 PM

MASTER'S

Chronic exposure to tobacco cigarette smoke (CS) leads to pulmonary damage, inflammation, exercise intolerance, and skeletal muscle contractile and repair dysfunction, as our group has shown that CS exposure also delays muscle repair after eccentric contractions. This study investigated whether chronic CS exposure increases the susceptibility of locomotor muscles to injury from a session of eccentric contractions, as previous studies have shown that smokers have a greater risk of muscle injuries. Methods: Young adult (8 weeks old) wild-type mice (C57BL/6J, IACUC 25-071, n=24) were exposed to daily periods of CS or air (as controls) for eight consecutive weeks. After the exposure period, mice were treated with Evans Blue Dye (EBD), and 24 hours later, the anterior crural muscles from one hindlimb were subjected to a nerve-stimulated lengthening contractions protocol (LCP). The contralateral hindlimb was tested for dorsiflexion ankle torque production, but was not injured by LCP. In vivo torque was measured immediately after LCP (Day 0 group) or the day after LCP (Day 1 group) on both legs, followed by tissue dissection. Ex vivo contractility of the extensor digitorum longus (EDL) muscle was measured. Myofiber cross-sectional area and injury were detected in the tibialis anterior (TA) muscles by immunohistochemistry (IHC). Results: Immediately after LCP, CS-exposed mice had a lower maximal in vivo torque compared to the Air group in the LCP legs (60 ± 18 % vs 79 ± 15 % of the uninjured leg, respectively, $P < 0.05$); however, this difference was absent at Day 1 post-LCP. Ex vivo EDL force of the LCP-subjected legs was equally decreased in both exposure groups at Day 0. However, maximal force was lower in the CS group vs. the Air group at Day 1 post-LCP (72 ± 20 % vs. 110 ± 27 % of the uninjured leg, respectively, $P=0.07$). TA images revealed EBD-positive myofibers only in the LCP-subjected muscles in the Day 1 group. Conclusion: Data indicate that smoke exposure accelerates EDL muscle contractile dysfunction, which may show increased muscle injury.

POSTER

Speaker

David Tran

Lead Presenter | I - 8

Non-Targeted Analysis GC×GC/TOF-MS of Secondhand Cannabis Smoke of Homes Using Silicone Wristbands

3:00 PM – 4:55 PM

MASTER'S

Expansion of cannabis legalization has increased both recreational use and unintentional secondhand cannabis smoke (SHCS) exposure. Although cannabinoids such as THC are known to produce psychoactive and physiological effects, less is understood about the health risks and chemical composition of SHCS. Studies show that SHCS can lead to detectable cannabinoids in nonsmokers, cognitive impairment, and exposure to particulate matter that harms the respiratory and cardiovascular systems. Children are a vulnerable group, and show higher rates of viral respiratory infections, adverse cognitive and emotional effects, and detectable cannabis metabolites in homes where cannabis is smoked. Yet, research on the chemical makeup of SHCS in household environments is limited.

Silicone wristbands are a low-cost and passive air sampling tool capable of capturing airborne hydrophobic and volatile compounds. They have been used to assess exposure to tobacco and vape secondhand smoke; however, they have not been applied to cannabis secondhand smoke exposure. The research will apply silicone wristbands to capture SHCS, using nontargeted analysis (NTA) and two-dimensional gas chromatography coupled with time-of-flight mass spectrometry (GC×GC/TOF-MS) to investigate, screen, and identify the profile of chemical compounds that are worn by children or hung indoors and outdoors of the home participants.

We hypothesize that cannabis-specific compounds will be detected in wristbands from homes where cannabis is actively smoked, but not in nonsmoking homes. Study objectives are: (1) to characterize and compare the chemical profiles of wristbands from cannabis-smoking and non-smoking households; (2) to identify cannabis-related compounds in SHCS-exposed wristbands; and (3) to screen detected chemicals for carcinogenic, endocrine-disrupting, or developmentally toxic properties using hazard databases. Findings from this study will provide novel insight into the composition of SHCS in indoor environments and support future public health assessments.

POSTER

Speaker

Jenny Liang

Lead Presenter | I - 8

Toxicity assessments of perfluorobutane sulfonic acid (PFBS) in two in vitro human placental models:

3:00 PM – 4:55 PM

MASTER'S

Perfluorobutane sulfonic acid, PFBS, is a compound belonging to the class of human made chemicals, per- and polyfluoroalkyl substances, PFAS, with its greatest source of exposure through drinking water. In humans, maternal PFBS exposure can be associated with adverse birth outcomes and complications for mothers-to-be. Prior studies associate PFBS exposure with preeclampsia, a pregnancy-specific disease characterized by shallow trophoblast invasion and subsequent placental ischemia. Despite epidemiological evidence, the toxicological mechanisms underlying this association and its effects on the placenta is not clearly known. The aim of the research is to understand a dose-response threshold and gene expression results related to reproductive toxicity in two in vitro human placenta models exposed to PFBS. This research generates a characterization of a toxicity profile for preliminary studies.

We measured cell viability in the HTR-8/SVneo cell line using the Promega MultiTox-Glo Cytotoxicity Assay at 0, 0.1µM, 1µM, 10µM, 20µM, 50µM, 100µM PFBS. Transcriptomic via RNAseq analysis was performed in two models: the HTR-8/SVneo cell line and in third trimester tissue explant. RNA sequencing was processed using the R package DESeq2. Pathway analysis was executed through gene set enrichment analysis, GSEA, programing using ranked Log2FC values.

The cell viability assay showed no dose-response relationship in the live-dead cytotoxicity assay in the cell model. The RNA sequencing results demonstrated concentration dependent effects in the third trimester tissue model, as evidenced by the magnitude of altered gene expression with 20µM versus 5µM versus 0µM PFBS (FDR > 0.05 + |LogFC| > 1 [FC>2]). Gene set enrichment pathway analyses identified upregulation in cell cycle proliferation in cells with 5µM treatment and both 5µM and 20µM treatments in third trimester tissue. Gene set enrichment pathway analyses identified downregulation in inflammation and immune response across all models and doses.

POSTER

Speaker

Maggie Drelichman

Lead Presenter | I - 8

CRISPRa-Driven Astrocyte Reprogramming of Human Fibroblasts for Neurodegenerative Disease Modeling

3:00 PM – 4:55 PM

MASTER'S

Astrocytes play essential roles in neuronal support, synaptic regulation, and neuroinflammation, and their dysfunction contributes to the progression of multiple neurodegenerative diseases. Human astrocyte models, however, remain limited by long differentiation timelines and variability associated with pluripotent stem cell–based approaches. In this study, we investigate a CRISPR activation (CRISPRa)–based strategy to directly reprogram human fibroblasts into astrocyte-like cells as a rapid and scalable platform for disease modeling.

Using a nuclease-dead Cas9 fused to transcriptional activation domains, we targeted astrocyte-associated gene networks to induce astrocytic identity without passing through a pluripotent intermediate. Reprogrammed cells were evaluated using morphological assessment, immunocytochemistry, and gene expression analysis to assess the induction of astrocyte-specific markers, including GFAP and S100B. Compared to parental fibroblasts, CRISPRa-treated cells exhibited pronounced morphological changes consistent with astrocyte-like phenotypes and showed increased expression of astrocytic markers at the transcript and protein levels.

This direct reprogramming approach enables the generation of astrocyte-like cells on a significantly shortened timescale relative to conventional differentiation methods. Importantly, this platform provides a flexible framework for modeling astrocyte-associated dysfunction in neurodegenerative disease contexts, including patient-derived fibroblast systems. Together, these findings support CRISPRa-driven direct reprogramming as a promising tool for studying astrocyte biology and developing more accessible human cellular models of neurodegeneration.

POSTER

Speaker

Nino Gvalia

Dr. Fred H Gage Lab of Genetics | Salk Institute for Biological Studies

Optimized Extended High-Frequency DPOAE Measures in Newborns

3:00 PM – 4:55 PM

UNDERGRADUATE

Extended high-frequency (EHF; >8 kHz) hearing loss often represents the earliest sign of ototoxicity or other cochlear injury in newborns, yet current clinical assessment tools are optimized for adult ears and conventional frequency (<8 kHz) ranges. Distortion product otoacoustic emissions (DPOAEs) provide a fast, objective, and noninvasive method for evaluating cochlear function, but stimulus parameters traditionally used in clinical settings (levels: L_1/L_2= 65/55 dB SPL; ratio: f_2/f_1= 1.22) may not effectively elicit robust responses in newborn ears due to differences in ear canal acoustics and middle ear properties. The purpose of this study is to identify stimulus-level combinations and frequency ratios that yield the largest and most robust EHF DPOAE responses in newborns using swept-level paradigms, with the ultimate goal of enhancing early detection of cochlear dysfunction. To date, DPOAEs have been measured in 30 healthy newborns who passed a hearing screening. Using an RME Babyface interface and an Etymotic Research ER-10X extended-bandwidth probe system, DPOAEs were recorded across conventional and extended-high frequencies (2–16 kHz). Stimuli were presented in paired frequencies (2/10, 4/12, 6/14, and 8/16 kHz) while systematically varying five f_2/f_1 ratios (1.10–1.30) and multiple L_1/L_2 level combinations. Forward pressure level (FPL) calibration was used to minimize standing-wave errors and ensure accurate stimulus level delivery in newborn ear canals. For each frequency pair, the stimulus conditions producing the largest DPOAE levels were identified and subsequently used to assess response repeatability. Across newborn participants, the greatest DPOAE levels were consistently recorded when L_1 exceeded L_2 (e.g., 65/57 dB FPL). Optimal f_2/f_1 ratios varied systematically with frequency: wider ratios were more effective at lower frequencies, whereas narrower ratios generated the largest responses at EHFs. Establishing newborn-specific stimulus parameters significantly improves collection of DPOAE levels and test reliability across an extended bandwidth.

POSTER

Speaker

L

Lindsey Sanchez

Lead Presenter | H - 1

The Chiara Project: Mapping Women's Health Inequities and Gendered Violence Across the San Diego, Ca

3:00 PM – 4:55 PM

MASTER'S

Access to healthcare for women along the U.S.–Mexico border remains deeply unequal, with serious consequences for both individual and public health. This study examines how environmental, social, and systemic factors intersect to shape women's well-being in this region. It focuses on two key components:

First, it identifies disparities in maternal, prenatal, and mental health services for displaced and underserved women living along the border.

Second, it leverages community-driven, open-source geospatial dashboards to visualize patterns of gender-based violence, health inequities, and institutional neglect.

The Chiara Project, a binational collaboration between the Metabolism of Cities Living Lab at San Diego State University and the Universidad Autónoma de Baja California—utilized ESRI ArcGIS Online and ArcGIS Dashboards to build an interactive spatial platform. This dashboard maps healthcare deserts and highlights hotspots of gendered injustice on both sides of the border. By integrating mapping with storytelling, the Chiara platform empowers communities, informs cross-border policy, and underscores the urgent need for safer, more equitable urban environments.

This research demonstrates how data justice and geospatial innovation can advance advocacy, prevention, and collaborative governance in borderlands. Findings reveal persistent spatial disparities in healthcare availability and accessibility, disproportionately affecting women in marginalized communities. These results call for integrated, cross-border public health strategies that address both immediate service gaps and long-term structural inequalities. Comparative analyses show moderate associations between violence against women and service density in San Diego, California, USA (healthcare, alcohol outlets, shelters), and much stronger associations between crime rates and service concentration in Tijuana, Mexico.

POSTER

Speakers

R

Rita Herfi

Lead Presenter | I - 8

J

Jesus Garcia

Co-Presenter | I - 8

Molecular and structural signatures of predicted allergens in Chlorella Vulgaris

3:00 PM – 4:55 PM

MASTER'S

Microalgae are increasingly recognized as a sustainable nutrient source, yet their introduction into the food system raises concerns about allergenicity. We analyzed 11,486 proteins of Chlorella vulgaris using pLM4Alg, a protein language model-based predictor, and cross-validated results with AllerCatPro 2.0. The pLM4Alg model identified 505 proteins with high allergen probability (≥0.9), which exhibited significantly greater stability ($P < 0.001$), β-sheet content ($P < 0.001$), and aromaticity ($P = 0.009$) compared to lower-probability proteins. Subcellular localization analysis revealed that high-probability allergens were more frequently localized to the cytoplasm but were underrepresented in the nucleus and plastids. Cross-validation identified 25 proteins with both high probability by pLM4Alg and strong evidence from AllerCatPro. These proteins were enriched in conserved protein families including glycoside hydrolases (GH16, GH47), pathogenesis-related proteins (PR4), tubulins, and translation elongation factors, many of which are established plant and fungal allergen families. At the superfamily level, predicted allergens clustered in P-loop NTPases and 6-hairpin glycosidase-like proteins, highlighting structural motifs associated with immunogenicity. Cross-reactivity analysis revealed strong similarity to major environmental allergens (dust mite, mold, latex, pollen) as well as food allergens (Ara h 18, Gal d 3, Pan h 9, Sal s 2). This dual environmental-food allergen profile suggests that microalgal proteins may contribute to cross-sensitization, with implications for both dietary exposure and occupational inhalation risks. By characterizing the molecular and structural features of potential allergens in C. vulgaris, this study provides a foundation for allergen risk assessment, experimental validation, and the safe development of microalgae as a food source.

POSTER

Speaker

S **Shealyn Daley**

Lead Presenter | I - 8

Feasibility and Preliminary Effects of an Online Intuitive Eating Intervention on Gestational Weight

3:00 PM – 4:55 PM

MASTER'S

Introduction: Excessive gestational weight gain (EGWG) is common among women entering pregnancy with an overweight or obese BMI. Women experiencing EGWG are at higher risk for gestational diabetes, premature birth, c-section, preeclampsia, neural tube defects, increased post-partum weight retention, etc.. Implementing Intuitive Eating (IE) may offer an effective and non-restrictive nutritional approach. However, an IE pilot randomized control trial hasn't been tested in this population. The purpose of this study is to evaluate the feasibility and preliminary effects of an evidence-based IE intervention among pregnant individuals at high risk for EGWG.

Methods: The 8-week randomized control trial will enroll pregnant women 12 - 22 weeks (n=80) from UC San Diego Obstetrics Clinics. Participants will be randomized into two groups: the intervention group and treatment as usual (wait-list) control. The Pregnancy Intuitive Eating Group (PIE-I) will be asked to complete 8 Canvas modules based on the Evelyn & Tribole Intuitive Eating Framework. An assessment before and after intervention will test clinical, mental, and behavioral health success. Participants will receive an IE Workbook and gift cards.

Results: Feasibility will be measured by predetermined benchmarks for acceptability and demand measures. Acceptability is defined as satisfaction, perceived appropriateness, burden, and intent to continue use. Demand is defined as retention and adherence to the intervention. Further measures include preliminary effects on IE scores, dietary quality, EGWG, stress, and self image. We hypothesize the IE intervention will be feasible, and improve health outcomes.

Discussion: This study will identify an accessible, non-restrictive nutrition intervention, supporting maternal and infant health. Additionally, findings will contribute to future grant funding for large-scale efficacy trials.

Keywords: Pregnant, intuitive eating, GWG, maternal health, dietary behavior

POSTER

Speakers

S **Sierra Guenther**

Lead Presenter | I - 8

R **Becky Eingorn**

Co-Presenter | I - 8

I - 9: Health Nutrition and Clinical Sciences (G) 2

3:00 PM – 5:00 PM | Location: Montezuma Hall

GRADUATE

POSTER

Speakers

A **Alonzo Mendoza**

Lead Presenter | I - 9

Christina Vialva

Lead Presenter | I - 9

D **Diane Greenwood**

Julia Travis
Lead Presenter | I - 9

Madeline MacDonald

Niccolo Degliantoni
Lead Presenter | I - 9

Shannon Sherman
Lead Presenter | I - 9

Shiori Enomoto
Lead Presenter | I - 9

Physical Activity as an Effect Modifier of the Association between TBI and Cognition

3:00 PM – 4:55 PM

MASTER'S

Background: Traumatic brain injury (TBI) is a risk factor for cognitive decline and cognitive impairment in older adults. Moderate-to-vigorous physical activity (MVPA) is associated with improved cognitive health among older adults and may modify the association between TBI and cognition, but evidence is limited. Hispanic/Latino adults may experience worse cognitive and functional outcomes following a TBI.

Objectives: To examine whether self-reported MVPA modifies the association between TBI and cognition and cognitive impairment among Hispanic/Latino older adults.

Methods: This cross-sectional study included 210 Hispanic/Latino participants from the Health and Retirement Study. TBI history was self-reported and classified dichotomously as ever versus never experiencing TBI. Frequency of engaging in MVPA was self-reported and categorized as active (≥once per week) versus inactive (

Results: MVPA was independently associated with cognition after full adjustment whereas TBI history was not consistently associated with cognitive outcomes after adjustment. Specifically, MVPA was associated with better global cognition (β: 2.75, 95% CI: 0.41 - 5.09, p = 0.02) and immediate and delayed recall (β: 1.99, 95% CI: 0.21 - 3.78 , p = 0.03) relative to those who were inactive. MVPA did not modify the associations between TBI and cognitive outcomes.

Conclusions: Findings from this study further support that promoting MVPA among the Hispanic/Latino population may benefit cognitive health, regardless of TBI history.

POSTER

Speaker

Alonzo Mendoza
Lead Presenter | I - 9

Sodium Retention and Distribution in Growing and Adult Rodents fed High and Low Salt Diets

3:00 PM – 4:55 PM

MASTER'S

Previous research demonstrates higher sodium retention with increasing levels of dietary salt in some populations. Our objective was to determine whole body sodium retention and sodium distribution on high and low salt diets using rodent models. Whole body retention of orally dosed Na-22, a gamma emitter, was measured in female growing and adult rats on high (3.1% by wt. of diet) and low salt (0.13% by wt. of diet) diets. Whole body retention of Na-22 was not different due to age of rats, but rats fed the high salt diet excreted Na-22 much more rapidly than rats fed a low salt diet. In a second study, whole body sodium retention was compared between destructive analysis and neutron activation analysis (NAA) in adult male and female mice. In mice, neither sodium retention nor tissue distribution were affected by dietary salt. Bland-Altman analysis showed comparability between the two methods and gave a correction factor. Dietary salt had little effect on retention in normotensive rodents and should be studied in hypertensive models.

POSTER

Speaker

Christina Vialva
Lead Presenter | I - 9

Formalizing a Concurrent ADN-to-BSN Pathway for Affordable and Equitable BSN Access

3:00 PM – 4:55 PM

DOCTORAL

Introduction

Access to baccalaureate nursing education remains limited for associate degree in nursing (ADN) students, particularly those from racially, ethnically, and socioeconomically underrepresented communities. Financial barriers, fragmented advising, and unclear academic pathways continue to limit timely progression to the Bachelor of Science in Nursing (BSN), despite workforce demands for BSN-prepared nurses.

Aim

The purpose of this Doctor of Nursing Practice (DNP) project was to develop and implement a structured, affordable concurrent ADN-to-BSN pathway between a California community college and a public university nursing program.

Methods

Guided by the Iowa Model of Evidence-Based Practice, this practice-focused project synthesized evidence related to concurrent enrollment models, academic progression, advising structures, and affordability to inform pathway development within an existing academic partnership.

Intervention

Key components included development of an aligned ADN-to-BSN academic roadmap, coordinated cross-institutional advising, targeted student outreach, and faculty development focused on online BSN instruction.

Findings

During early implementation, participation increased from 13 ADN students in Fall 2025 to 19 students enrolled for Spring 2026. Faculty confidence in online instruction improved following targeted training, with the proportion reporting high confidence increasing substantially. Early enrollment patterns indicate engagement of students from populations historically underrepresented in BSN programs.

Conclusion

Early findings suggest that intentional academic alignment, coordinated advising, and faculty development are feasible strategies for supporting concurrent ADN-to-BSN progression and expanding equitable access to baccalaureate nursing education.

POSTER

Speaker

Diane Greenwood

Prune on regulating Ca metabolism in osteoporotic rat

3:00 PM – 4:55 PM

MASTER'S

Bone health is an important aspect of our overall wellbeing. Prunes are rich in calcium, Vitamin K, fiber, magnesium, and polyphenols, which may be valuable as a method of improving bone health and reducing risk of long-term calcium deficiencies and associated bone loss. The purpose of the study was to determine the effects of prune consumption on regulation of calcium absorption and reabsorption, lipid profiles, antioxidant capacity, and inflammation in rats fed a prune diet, as well as explore the mechanism of this process. We hypothesized that prune consumption would increase calcium utilization by upregulating transporters and reabsorption transporter gene expression. Fifty-two Sprague-Dawley rats were assigned to a 2 (diet: control or 15% Prune) × 2 (sex: ORX male or OVX female) factorial design. While there was no difference in duodenal calcium transport gene expression of Trpv6, CaBP9K, and PMCA1b, prune-fed rats exhibited significantly lower duodenal expression of the inflammatory gene Rela gene ($P < 0.05$). No differences in the expression of Trpv5, CaBP28K, PMCA1b, or Rela were found in the kidney. Additionally, Bone Alkaline Phosphatase (BAP) levels, a bone-formation marker, were significantly greater in prune-fed rats than in the control group ($P = 0.046$). Total antioxidant capacity was significantly higher in rats on the prune diet ($P = 0.023$). No significant differences in triglycerides, total cholesterol, HDL, and LDL levels were found between the control and prune groups. Although prunes contain high sugar content, this did not confer increased cardiovascular risk. These findings suggest that prunes improve factors that support bone health in rats through increased bone formation markers, lower inflammation, and greater antioxidant capacity.

POSTER

Speaker

J

Julia Travis

Lead Presenter | I - 9

SDSU Mock Circulatory Loop that is Compliant with FDA Guidance

3:00 PM – 4:55 PM

MASTER'S

Models of cardiac systems are advantageous in representing cardiovascular physiology and hemodynamics, assessing cardiovascular devices, and supporting FDA required safety. Mock circulatory loops (MCL) are in-vitro, physical models that simulate the human cardiovascular system based on electrical circuit analogs like the Windkessel model. These systems reproduce a range of cardiac functions from normal to pathophysiological. The SDSU-MCL is a customized platform developed for evaluating heart valves, catheters and pumps. This project investigates the effectiveness of SDSU's MCL to achieve standards that are compliant with FDA guidance and regulatory standards.

The SDSU-MCL is composed of an aortic chamber, an atrial chamber, and a modified left ventricle chamber attached to a 3-element Windkessel circuit incorporating two compliance and one resistance elements. The SDSU-MCL is capable of producing different stroke volumes and heart rates generated by a piston pump (Vivitro Superpump). Pressure and flow are measured at 200Hz and recorded for analysis of mean and standard deviation.

Initial measurements from the SDSU-MCL demonstrate an average cardiac output of 5.44L/min and a mean aortic pressure (MAP) of 101.16mmHg ± 3.88mmHg for a heart rate of 70bpm and a stroke volume of 80ml. These values are within the range of conditions for a healthy adult. Future work will be conducted by adjusting the peripheral resistance to model pathological conditions for coronary artery disease (CAD) and hypertension. The proposed conditions for CAD include a heart rate of 70bpm, a cardiac output of 5.0L/min, and a MAP of 82mmHg. The proposed conditions for hypertension include a heart rate of 70bpm, a cardiac output of 5.0L/min, and an MAP of 118.33mmHg. The SDSU-MCL will be used to measure the performance of cardiac devices and evaluate compliance with FDA guidance.

POSTER

Speaker

M

Madeline MacDonald

Flow Biomarkers in a Patient-Specific LVAD Model with a Favorable Outflow Graft Angle

3:00 PM – 4:55 PM

MASTER'S

Left Ventricular Assist Devices (LVADs) are mechanical pumps surgically implanted to redirect blood from the left ventricle to the aorta in heart failure patients, yet remain associated with high stroke risk from clot formation driven by patient-specific geometry and cardiac conditions. In this study, we evaluate patient-specific flow dynamics of the ascending aorta and LVAD outflow graft to determine whether flow biomarkers reflect reduced stroke-risk trends.

CT scans from an LVAD patient were used to reconstruct patient-specific models of the left ventricle and aorta. Outflow graft angle was measured as the 3D angle between the aortic valve, inner anastomosis, and outflow graft. Aorta was 3D-printed in transparent resin, coupled with a silicone left ventricle, bioprosthetic mitral valve, and HM3 LVAD. The assembly was placed in a mock circulatory loop with a 40% glycerol–water blood analog. Native heart function was produced with a piston pump and LVAD pump speed of 5200rpm. Flow and pressure conditions were adjusted to match clinical targets and recorded in LabChart. 3D flow field was measured using particle image velocimetry with 50-µm tracer particles and processed to generate regional flow metrics.

The outflow graft angle measured 59.83°. Target medical record hemodynamics included a heart rate of 70–80 bpm, mean aortic pressure of 89–90 mmHg, cardiac output of 2.88 L/min, and no aortic valve openings. Testing at 62 bpm yielded a mean arterial pressure of 92.79 mmHg and an LVAD flow rate of 2.85 L/min. Tomographic 3D velocity mapping showed a velocity of 0.238 m/s and vorticity of 0.089 s^{-1} in the aortic root, compared to 0.416 m/s and 0.008 s^{-1} in the outflow graft.

Findings demonstrate that a patient-specific LVAD model can reproduce clinical hemodynamic targets and assess local flow patterns. Although the experiment was conducted at a low heart rate of 62 compared to medical records; future studies will investigate higher heart rates. Reduced velocity and elevated vorticity in the aortic root motivate further analysis of stroke-related flow biomarkers.

POSTER

Speaker

Niccolo Degliantoni

Lead Presenter | I - 9

Effects of Acute Prune Intervention on Calcium Metabolism and Bone Calcium Uptake in Osteoporotic R

3:00 PM – 4:55 PM

MASTER'S

Background: Prunes have been used in many research interventions and show evidence of improving overall bone health.

Objective: We evaluated the effects of dose-dependent prune diet (0%, 5%, 15%, 25%) in OVX rats on calcium-utilization efficiency.

Methods: The single-center 3-day randomized controlled trial tested the effects of 5%, 15%, and 25% prune in diet compared with a control group on calcium utilization and bone biomarkers in osteoporotic rats.

Results: A total of 43 ovariectomized rats were assigned into a 0% diet (n=13), 5% (n=10), 15% (n=10), 25% (n=10) prune diet over three to four days. All rats experienced weight gain throughout the trial, however prune intervention for 4 days significantly decreased total food intake ($P < 0.001$). Despite lower food intake, prune intervention had a positive trend towards increased total calcium absorption ($P=0.063$) and increased calcium retention ($P=0.06$). Urine calcium excretion between groups showed no differences ($P=0.5$) but fecal calcium excretion was significantly different between groups ($P=0.03$) with rats in the higher prune diet expressing a significant decrease in calcium excretion ($P=0.0002$). This observation is consistent with previous studies and indicates increased calcium utilization in the body. We used radioactive and stable calcium isotopes (Ca-45 and Ca-43/42) to track calcium absorption and retention. Calcium isotope results show a significant dose response effect on the acute prune intervention ($P<0.0001$), with the highest calcium retention in the bone observed in the group fed the highest prune content (25%).

Conclusion: Additional prunes included in everyday diet can increase calcium retention in the bone and absorption from the diet in a rat model of steroid hormone deficiency Stable and radioactive calcium tracers are significantly more sensitive for calcium balance studies, compared to total calcium measurements. This study will be followed in a human trial.

POSTER

Speaker

Shannon Sherman

Lead Presenter | I - 9

Prune Intake Enhances Bone and Muscle Development in Growing Rats

3:00 PM – 4:55 PM

MASTER'S

Bone and muscle interact through both biomechanical and biochemical mechanisms, a process known as “crosstalk.” Biomechanical forces directly stimulate bone and muscle formation, whereas biochemical mechanisms involve hormonal signaling pathways that regulate metabolism in both tissues. While prune intake has been shown to improve bone health, its effects on muscle health remain unclear. If bone–muscle crosstalk plays a functional role, improvements in bone density may be accompanied by increases in muscle mass or function. Previous studies from Weaver’s laboratory demonstrated that orchiectomized rats exhibited increased calcium absorption and retention following 21 days of daily prune intake compared with control rats fed a purified rodent diet. This study focuses on adolescent male rats undergoing rapid bone growth to evaluate whether long-term prune intake enhances calcium metabolism, bone density, and muscle mass.

Twenty adolescent male rats (4 weeks old) will be randomly assigned to either a control diet or a diet containing 15% prune for 8 weeks. Metabolic balance studies and calcium absorption tests will be conducted during the final two weeks using metabolic cages. Twenty-four–hour urine and fecal samples will be collected for four consecutive days, with a Ca-45 tracer administered on the first day to determine calcium absorption and retention. Femurs will be collected to measure Ca-45 retention using liquid scintillation counting. Dual-energy X-ray absorptiometry will be used to assess bone density and muscle mass differences between dietary groups. Gastrocnemius muscle mass will be evaluated using wet weight measurements, and muscle fiber elasticity will be assessed using a texture analyzer.

A diet containing 15% prune is expected to increase calcium absorption, calcium retention, and bone density, potentially due to chlorogenic acid, a major polyphenol in prunes. In parallel, total muscle mass and gastrocnemius muscle mass are also expected to increase, supporting a role for prune intake in bone–muscle crosstalk during growth.

POSTER

Speaker

Shiori Enomoto
Lead Presenter | I - 9

K - 4: APIDA Research and Servingness Exhibit (U) 1

3:00 PM – 5:00 PM | Location: Montezuma Hall

UNDERGRADUATE

APIDA EXHIBIT SPECIAL SESSION

Speakers

Habon Ahmed
Lead Presenter | K - 4

Jerald Lipa
Lead Presenter | K - 4

Modeling Healthcare Accessibility for Dengue Fever Patients in Nepal

3:00 PM – 4:55 PM

UNDERGRADUATE

Dengue fever is a mosquito-borne viral disease highly prevalent in tropical and subtropical regions, putting about 4 billion people worldwide at risk. In Nepal, since the first reported case in 2004, dengue has become endemic, affecting hundreds of thousands of people each year. In severe cases, timely access to a healthcare facility is essential, making healthcare

accessibility a critical public health concern. In this study, we develop a model to estimate the Accessibility Index (AI), representing the healthcare accessibility for dengue fever patients in Nepal. Using our model, formulated based on the level of service and demand at each of about 3500 healthcare facilities across the country, we compute monthly AI for 77 districts of Nepal for 2022 and 2023. Furthermore, we identify spatial inequities, as demonstrated by healthcare facility deserts (areas where both a district and its neighboring districts exhibit low accessibility), by applying Local Indicators of Spatial Association (LISA) clustering to the computed district-

level AI values. The healthcare facility deserts represent concentrated gaps in healthcare availability and highlight priority areas for targeted intervention. Our results of both accessibility patterns and healthcare facility deserts provide actionable insights to support public health planning and promote more equitable distribution of dengue-related resources across Nepal.

APIDA EXHIBIT SPECIAL SESSION

Speaker

Habon Ahmed
Lead Presenter | K - 4

Duality of Okinawan Identity

3:00 PM – 4:55 PM

UNDERGRADUATE

This study investigates the effects of colonization and international pressure on Okinawa and Okinawan identity. The purpose of this research aims to bring clarity and pay homage to Okinawan culture and what it means to be “Okinawan” in the context of modern Japan. By compiling existing research on the history of Okinawa, I focus on the impact of Japanese political and cultural influence on the region. Okinawa, formerly the Ryukyu Kingdom, was brought under Japanese control beginning in 1609. In more recent attempts to reduce and suppress regional differences between mainland Japan and the Ryukyu islands, Japan instituted assimilation policies into Okinawa’s education system. Alongside these formal policies, informal social pressure encouraged Okinawans to assimilate into mainstream Japanese culture. Although these pressures seem like they would destroy Okinawan culture entirely, I found that Okinawans have a dual sense of “being Japanese” and “being Okinawan.” Okinawan culture continues to be unique in Japan and in the world. For centuries, the Ryukyu Kingdom has taken influences from those they have come in contact with either directly – through political and trade relations – or indirectly – through traded goods – and incorporated them into their own. Okinawans have learned to coexist with these cultural influences the same way they have learned to coexist with the islands around them.

APIDA EXHIBIT SPECIAL SESSION

Speaker

J **Jerald Lipa**
Lead Presenter | K - 4

L - 4: Theatre Presentation - Flim/Table Reading/Performance

3:00 PM – 5:00 PM | Location: Montezuma Theatre

UNDERGRADUATE/GRADUATE

FILM PERFORMANCE TABLE READING

Speakers

C **Charlotte Bridant**
Lead Presenter | L - 4

L **Lesieli Netane**
Lead Presenter | L - 4

W **Wren Leesonne**
Lead Presenter | L - 4

Holding Up A Mirror: How History Repeats Itself Within the Life and Death of King John

3:10 PM – 3:35 PM

UNDERGRADUATE

How do we know who we are? The question haunts William Shakespeare's oft-ignored history play The Life and Death of King John. The play chronicles the reign of England's King John and uses his struggle to maintain power in order to examine national identity, asking how political conflict warps the selfhood of both rulers and subjects, how power structures grant and deny people legitimacy, and how one person's grief can reflect the crisis of a nation. Shakespeare's text raises questions about royal succession and interrogates how the division and commodification of land and life, through national borders and capitalism, have created ideological or emotional fissures in society. These questions echo back from Shakespeare's time living in the Elizabethan era through the history of English monarchy, yet they resonate with new ferocity today.

Our exploration of King John seeks to hold up a mirror to the audience, so that we may confront the ways that these same questions still follow us. This play can be understood in the context of today's political climate, despite it being written and taking place centuries ago. We intend to create a devised theatre piece that utilizes text from King John while weaving in interviews from people living today on cultural or geographical borders. It is our hope that, in amplifying the echoes between Shakespeare's play and the modern day, we can confront the cycles in our own history, and choose to face these questions directly rather than continue to be haunted by them.

We intended to create and present a ten-minute theatrical exploration of our King John mash-up at the Student Research Symposium that gives us as makers the chance to apply our theories in practice. Our project allows audiences to understand the power of devised theatre also lifting the veil from their eyes about our current climate. Those who do not learn history have no choice but to repeat it.

FILM PERFORMANCE TABLE READING

Speakers

Charlotte Bridant
Lead Presenter | L - 4

Amelia Simpson
Co-Presenter | L - 4

Ryan Robbins
Co-Presenter | L - 4

Emily Campos
Co-Presenter | L - 4

Nate Bartley
Co-Presenter | L - 4

Silent attack on Paradise: the exoticization and romantacization of pacific islanders in media

3:35 PM – 4:00 PM

UNDERGRADUATE

The research method is quite simple. After coming up with a thesis/hypothesis I began to look through different research articles and blogs that went into deep analysis around different topics. I primarily looked for articles that examined the Hawaiian identity and the impacts of the culture being exoticized, fetishized, and romanticized. This was a part of laying the foundation of the basis for my claim. Once I found different researchers' perspectives on how Hawaiian culture has begun to lose its cultural authenticity because of the exoticization and romanticization introduced by American media. I began to examine different medias that partake in this quiet erasure researching and understanding terminology focused on describing the experience of people of color in America. I then began to use the things that I research and applied this to my analysis of films such as Lilo and stitch and Moana. I examined other forms of media as well to add onto my claim.

FILM PERFORMANCE TABLE READING

Speaker

Lesieli Netane
Lead Presenter | L - 4

Playing the Problem Play: Producing Cymbeline

4:25 PM – 4:50 PM

UNDERGRADUATE

Cymbeline is one of Shakespeare's least frequently staged works, often described as unmanageable due, in part, to its abrupt shifts in time, place, genre, and emotional register. It is a play where romance coexists with brutality, where political allegory sits beside pastoral comedy, and where identity is constantly destabilized through disguise, misrecognition, and performance. Historically, productions have attempted to solve these challenges through aggressive cutting or tonal streamlining.

Our SDSU Shakespeare Lab production approaches Cymbeline as a living system rather than a fixed script, drawing on contemporary participatory storytelling forms such as LARP, TTRPGs, and reality television. These forms are uniquely equipped to hold contradictions. They allow narrative to unfold through rules, chance, performance, and negotiation, mirroring the way Cymbeline itself operates. Rather than presenting a single authoritative interpretation, our production foregrounds process, play, and collective interpretation. By explicitly incorporating aspects of game logistics and reality-based performance, the production makes visible the mechanisms by which stories are constructed, manipulated, and believed. Cymbeline repeatedly asks who controls narrative authority and at what cost. Participatory forms make those questions legible to a contemporary audience accustomed to mediated spectacle and performative authenticity.

The ensemble operates as both performers and investigators. Working in collaboration with the director, actors explore how character functions when understood as a role being played within a volatile narrative environment. This framework allows the production to engage with the play's ethical and political tensions, where ambiguity is not erased but structured. Ultimately, this project is an inquiry into production itself: how we stage Shakespeare, how we translate instability into intelligibility, and how modern performance vocabularies can unlock plays long considered "unplayable."

We propose to present a ten-minute theatrical exploration at the February

FILM PERFORMANCE TABLE READING

Speakers

W **Wren Leesonne**
Lead Presenter | L - 4

A **Arianna Bedrosian**
Co-Presenter | L - 4

J **Jaysten Merced-Ares**
Co-Presenter | L - 4

Q **Quetzal Alcaraz**
Co-Presenter | L - 4

R **Ryan Yerger**
Co-Presenter | L - 4

Acknowledgments

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